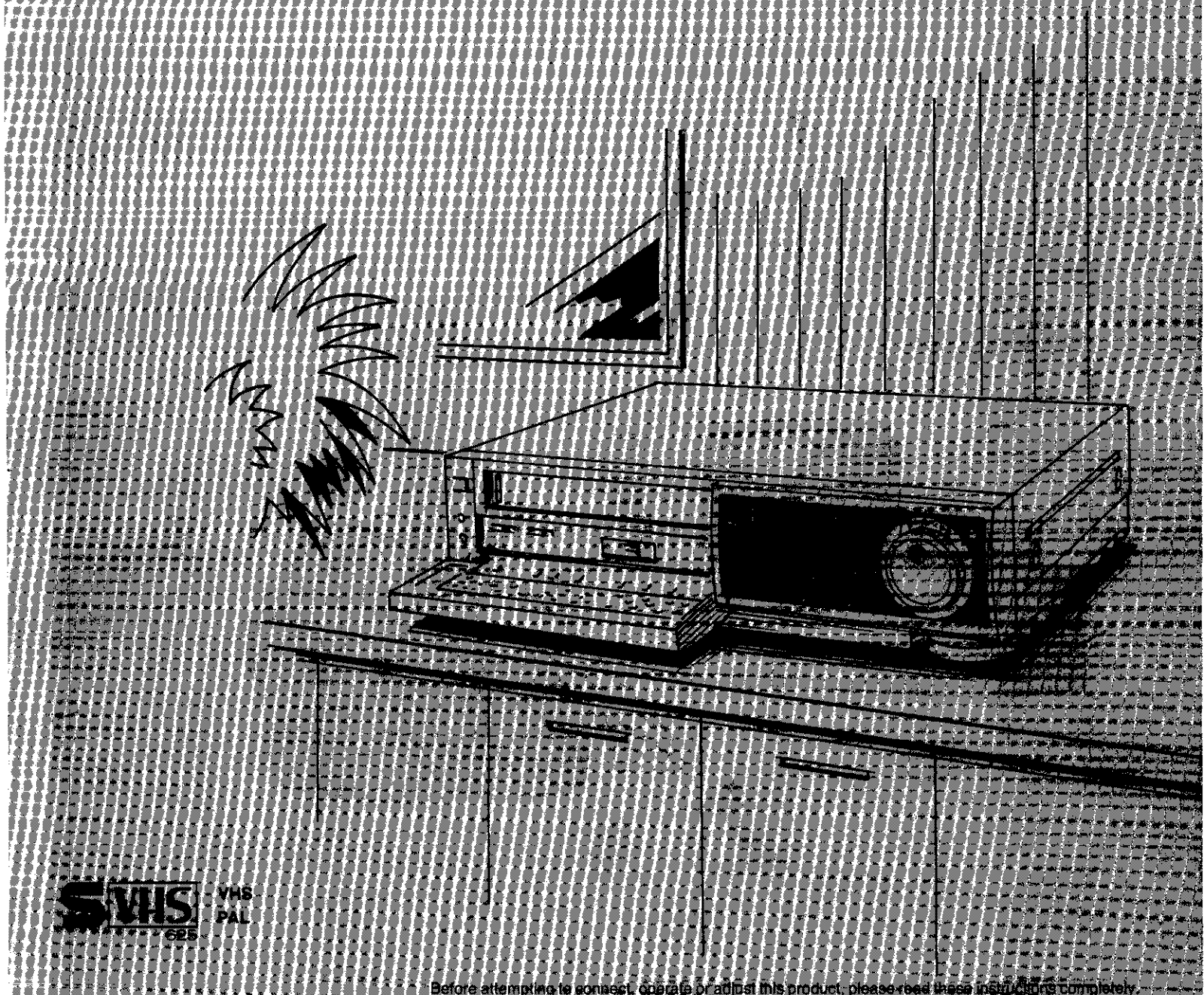
Panasonic

Video Cassette Recorder

NV-FS88EC

Operating Instructions
Instrucciones de funcionamiento



S-VHS VHS PAL

Before attempting to connect, operate or adjust this product, please read these instructions completely.
Lea con atención todas estas instrucciones antes de tratar de conectar, utilizar o ajustar este producto.

Precautions

Please read these cautions before you operate this VTR.

Cassette Compartment Door

When first unpacking the unit, you may notice that the cassette compartment door is partially open. This condition is due to the operation of a safety device designed to protect the unit from vibration during shipment; it is not a malfunction. When the AC mains lead is connected to a mains outlet, the door will return to its original position.

Avoid Sudden Changes in Temperature

If the VTR is suddenly moved from a cold place to a warm place, condensation may form on the tape and inside the VTR.

Humidity and Dust

Avoid places where there is high humidity or much dust, which may cause damage to internal parts.

Do Not Obstruct the Ventilation Holes

The Ventilation holes prevent abnormal increase in temperature. Do not block or cover these holes. Especially avoid covering the holes with soft materials such as cloth or paper.

Keep away from High Temperature

Keep the VTR away from extreme direct heat such as direct sunlight, heating radiators, or closed automobiles.

Keep Magnets away

Never bring a magnet or magnetized object near the VTR because it will adversely affect the performance of the VTR.

No Fingers or Other Objects Inside

Touching internal parts of this VTR is dangerous, and may cause serious damage to the VTR. Do not attempt to disassemble the VTR. There are no user serviceable parts inside.

Keep Water away

Keep the VTR away from flower vases, tubs, sinks, etc.
CAUTION: If liquids are spilled into the VTR, serious damage could occur. If you spill any liquid into the VTR, consult qualified service personnel.

Lightning

To avoid damage by lightning, disconnect the aerial plug from the VTR.

Cleaning the VTR

Wipe the VTR with a clean, dry cloth. Never use cleaning fluid, or other chemicals. And do not use compressed air to remove dust.

Stacking

Place the VTR in a horizontal position, and do not place

Video Head Clogging

The video heads place picture signals on the tape during recording and read picture signals from the tape during playback and they are, therefore, of critical importance for the picture quality. To ensure that they can always provide optimum picture quality, this VTR is equipped with an Auto Head Cleaning Function that removes tape particles and dust from the video heads. However, if the VTR is used over extremely long periods of time, these heads may still become dirty and clogged. In such a case, the signals can no longer be recorded correctly, and the playback picture will be distorted accordingly. This is the case, for example, during the playback of a tape, the sound is reproduced normally, but no picture is seen, or the picture is greatly distorted. When such a symptom occurs consult your dealer for further advice.

Condensation may form in the VTR if:

- The VTR is in a room where the heater has just been turned on.
- The VTR is in a room with steam or high humidity.
- The VTR is brought from cold surroundings into a well-heated room.
- The VTR is suddenly brought from cool surroundings, such as an air-conditioned room or car, to a place which is hot and humid.

Note:
Do not operate the VTR for at least 1 hour if any of the above conditions occur. This VTR does not incorporate a dew sensor.

Information for Your Safety

IMPORTANT

Your attention is drawn to the fact that recording of pre-recorded tapes or discs or other published or broadcast material may infringe copyright laws.

WARNING

TO REDUCE THE RISK OF FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS EQUIPMENT TO RAIN OR MOISTURE.

Remarks

1. This VTR is capable of receiving SECAM type broadcasting programmes (SECAM B/G) and recording/playing back its colour television signals.
2. When a cassette which has been recorded on this VTR is played back on a SECAM VTR, the picture may be reproduced in black and white. When it is played back on a PAL VTR without SECAM capability, the picture may be not reproduced in normal colour.
3. When cassettes recorded on a SECAM VTR or SECAM pre-recorded cassettes are played back on this VTR, the picture is reproduced in black and white.
4. This VTR is not designed for use in France, where a SECAM VTR should be used instead.

This model conforms to the EC directive (for radio interference) 87/308/EEC.

FOR YOUR SAFETY

■ **DO NOT REMOVE OUTER COVER.**
To prevent electric shock, do not remove cover. No user serviceable parts inside. Refer servicing to qualified service personnel.

HQ (High Quality) Picture System

Video recorders carrying the HQ symbol mark feature the new VHS High Quality Picture System. This system assures complete compatibility with VTRs that use the conventional VHS system.

Contents

These operating instructions are split into four sections:

ENGLISH

Setting Up

Precautions 4
Connections 5
Tuning the TV into your VTR 8
Setting the Clock of the VTR 9
Storing TV Broadcasts into your VTR 10
Controls, Indicators and Connection Sockets 12
Infra-Red Remote Controller 18

Basic Operations

Playback 20
On-the-spot Recording 22
Automatic Features 24
One-Touch Timer Recording (OTR) 25

Advanced Operations

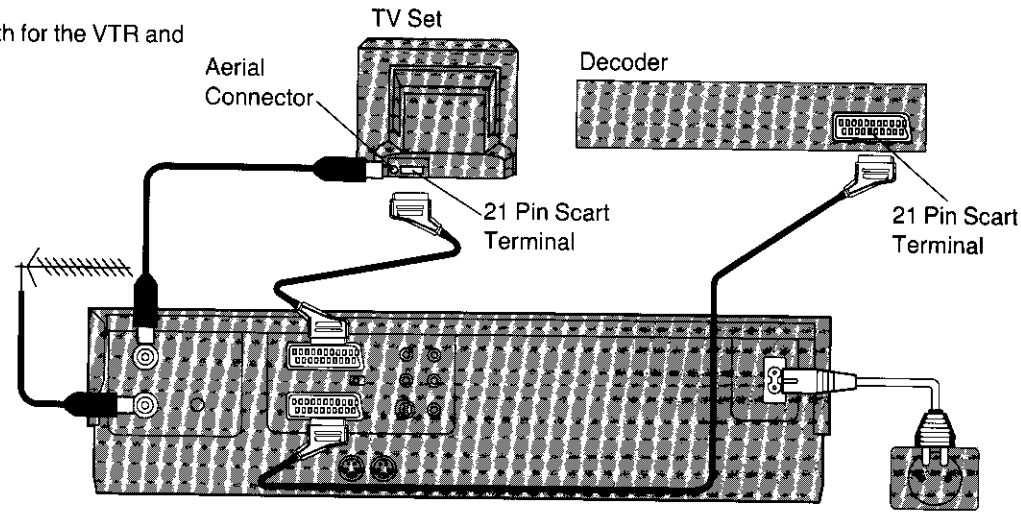
Timer Recording 26
•Using the Remote Controller 28
Search Function 30
•VHS Index Search System 30
•Time Search 31
Editing 32
•Copy Editing 32
•Assembly Editing 33
•Synchronized Editing 33
•Insert Editing 34
•Audio Dubbing 35
Other Function 36
•Hi-Fi Audio System 36
•NTSC Playback 37
Bar Code Operation 38
•Scanner Preparation 38
•Setting the Clock 39
•Timer Recording 40
•Storing TV Broadcasts 42

Helpful Hints

Before Requesting Service 43
Specifications 47

• Connection to a pay TV decorder

Connect the TV set decoder to the VTR as shown in the figure.
One decoder can be used both for the VTR and TV.



Note:

- If the TV set is provided with an RGB-compatible connector, connect the 21-pin AV cable from the VTR to this connector. Use full-pin 21-pin AV cables for connecting the TV set and VTR and for connecting the VTR and decoder.

AV LINK

With this button the connected colour TV set can be switched from TV to AV operation.
Condition: connection by means of Scart cable, and reaction to switching voltage as for PLAY function.
This makes a variety of functions possible, such as simultaneous recording and viewing when a "Premiere" decoder or a satellite receiver has been connected.

Enjoying sound and pictures from the VTR
VTR mode (VTR indicator lights)

Watching another programme on the TV while recording on the VTR
TV mode (VTR indicator goes off)

- Select the programme to be watched using the TV set's tuner.
- The sound and pictures of a different channel are received by the VTR.

VTR		TV set
Power ON	VTR mode	AV input selected
	TV mode	Input from TV set's tuner*
Power Off	—	Input from TV set's tuner

*When the VTR is set to the TV mode and the VTR to the pay TV (channels 90 to 99) mode, the signals will still be scrambled even when pay TV is selected by the TV set's tuner. At a time like this, either set the VTR to the VTR mode or switch the TV set's input signals to AV input.

Connections

•Connection to a TV Set with 21 Pin Scart Terminal

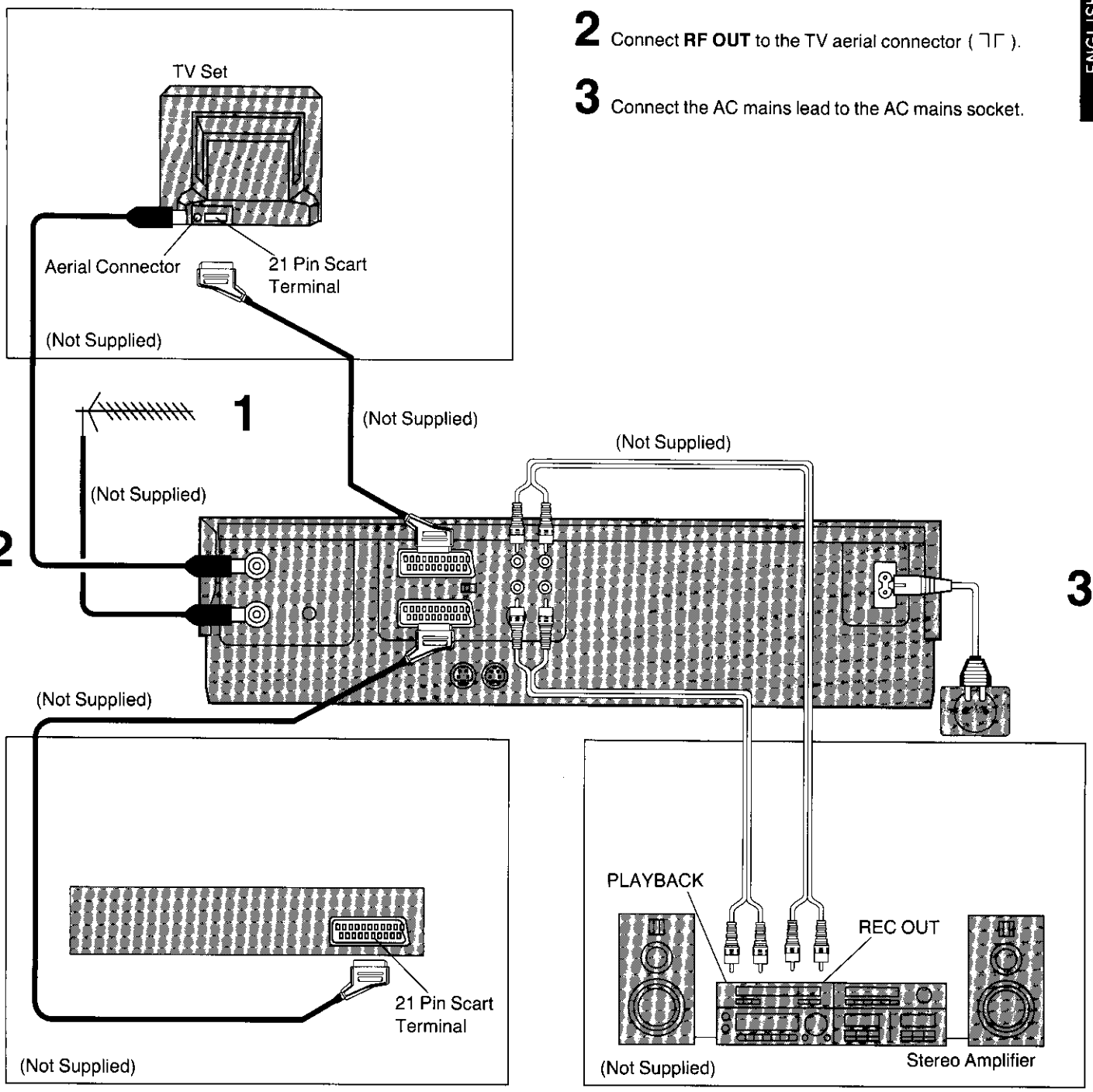
The Scart connection is optional but will be required to playback Hi-Fi stereo sound through a stereo TV. See page 17 for more detail.

The following connections are required to record and play back the VTR through a TV set:

1 Connect an external aerial to **RF IN**.

2 Connect **RF OUT** to the TV aerial connector (⊓⊓).

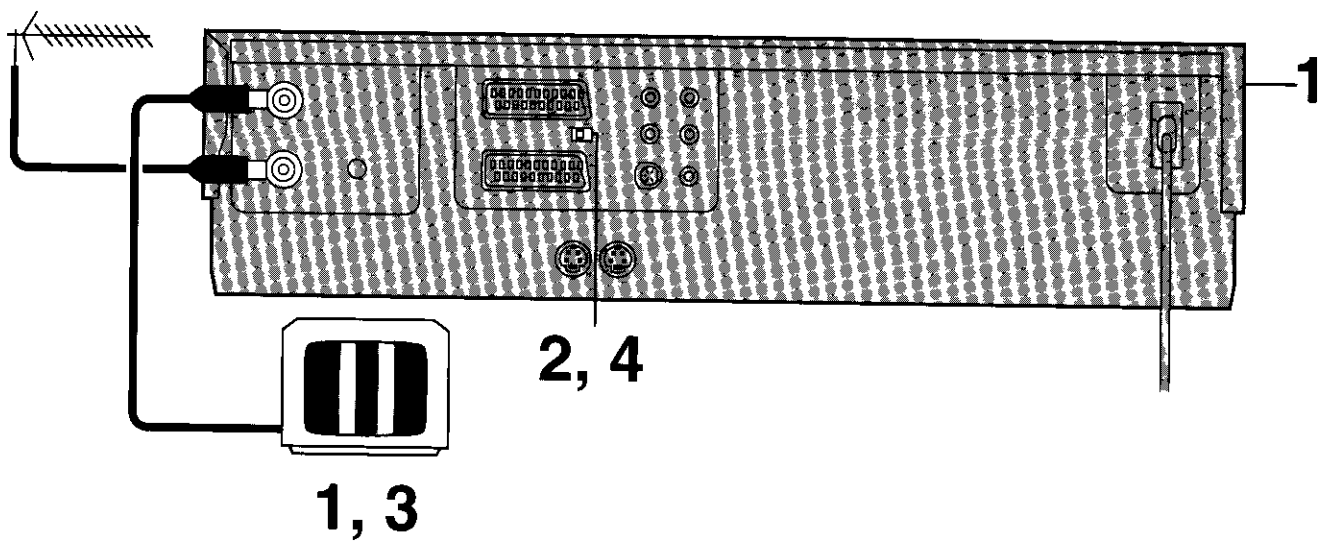
3 Connect the AC mains lead to the AC mains socket.

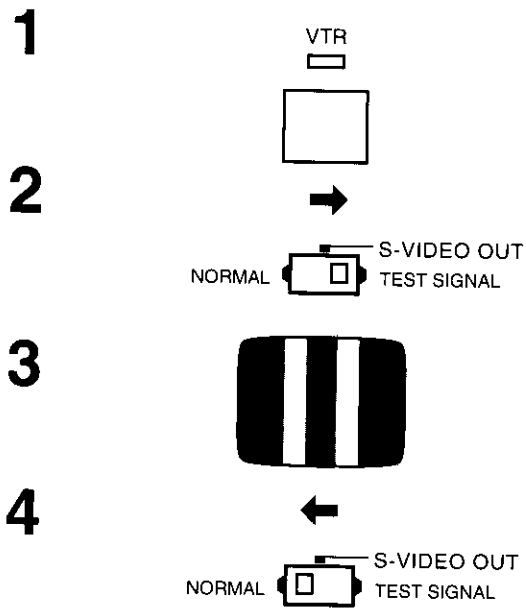


•Connection to a Satellite Receiver, etc.

•Connection to a Stereo Amplifier

Tuning the TV into your VTR





It is possible to view the video picture on your TV in the same way as you watch TV broadcasts.

If you are connecting the video to the TV by the use of the 21 pin scart terminal or S-Video/Audio output sockets then you do not need to follow the procedure mentioned below. See pages 5–7.

Operations

1 Turn the TV on. The VTR should also be turned on by pressing **VTR** on the front panel of the video.

2 To generate a test pattern, set the **NORMAL/S-VIDEO OUT/TEST SIGNAL** located on the rear of the video to the TEST SIGNAL.

3 Set the TV to a free station number which you wish to use for your video playback i.e. station 5.
Follow the tuning procedure for your TV until you can view the TEST BARS.

4 After tuning the test bars into the TV, set **NORMAL/ S-VIDEO OUT/TEST SIGNAL** to NORMAL.
Station 5 is now your video channel.

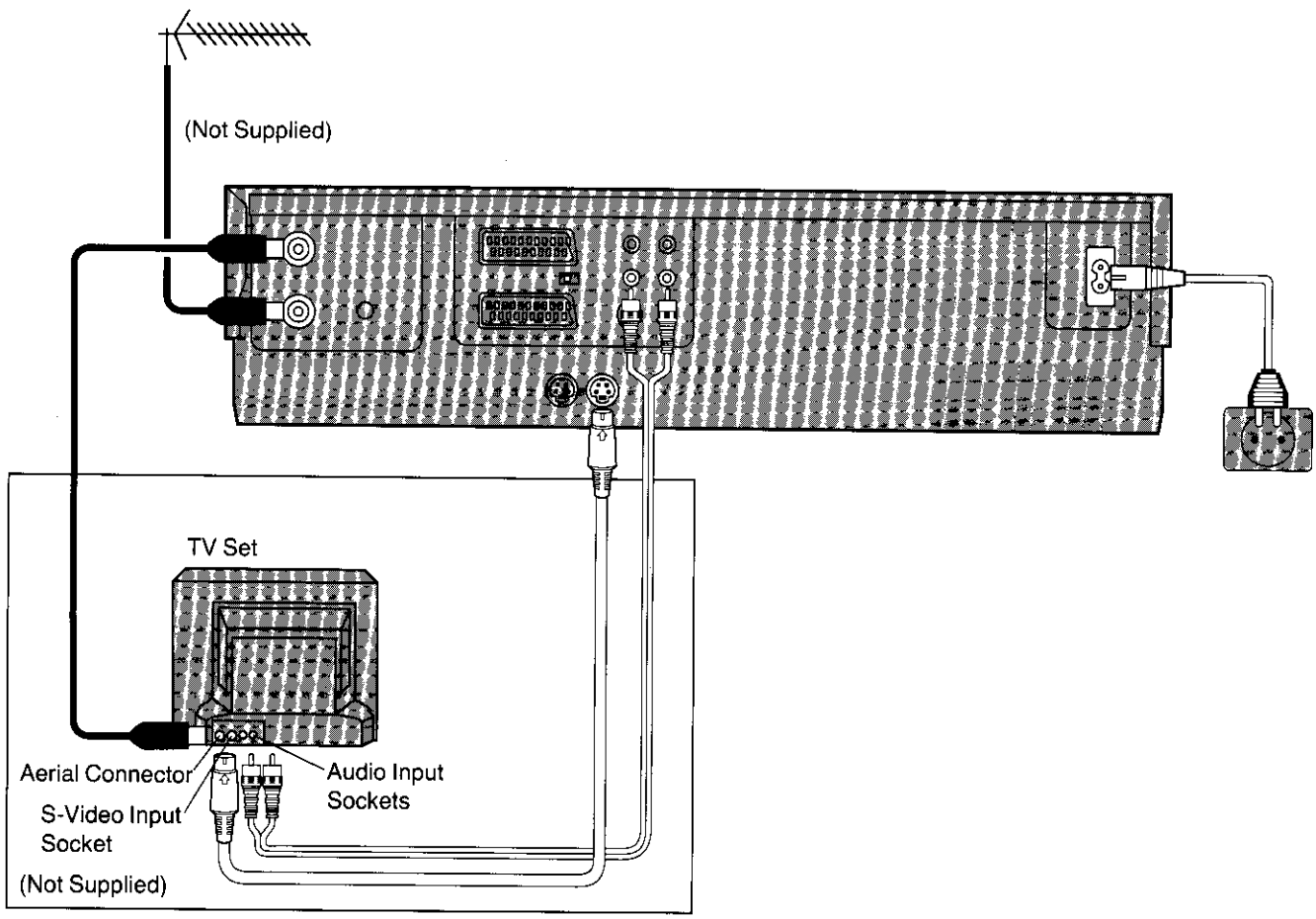
Note:
The TEST signal is transmitted on channel 36 of the broadcasting channels. If you are encountering interference from another broadcast on the video channel, you may readjust to a free channel by using the **CH ADJ.** screw which is located on the rear of the VTR.

Please note that if the **CH ADJ.** screw is used then you will have to return your TV to the TEST signal as in item 2 to 4 above.

This VTR uses the S-VHS format that makes it possible to obtain high resolution and high picture quality by using the high-performance S-VHS video cassette tapes.

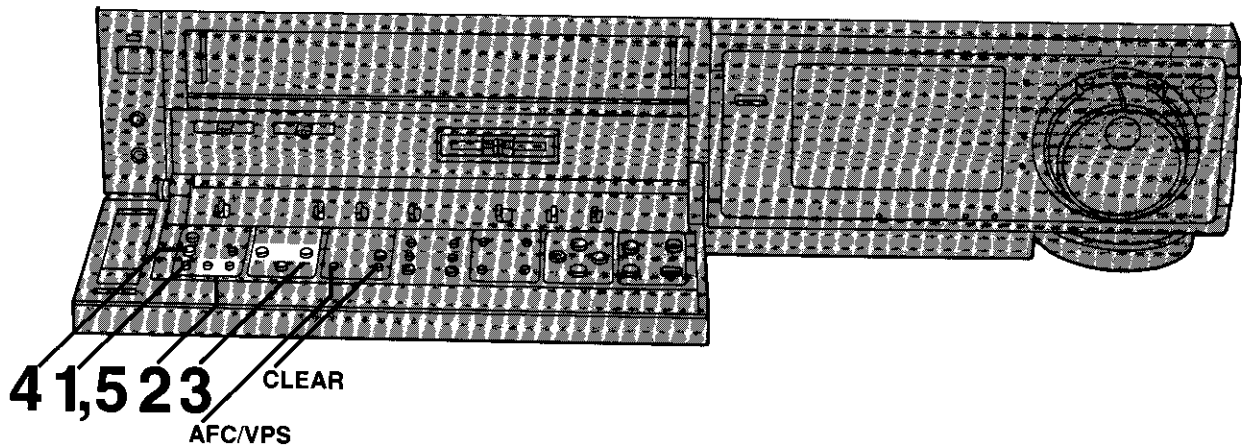
The conventional video sockets of VTRs output (input) a combination of the luminance signal (Y) and colour signal (C) which are recorded on the video tape. The new S (Separate)-Video Socket allows separate transmission of signals in order to obtain clearer pictures.

The connection with the S-Video Cable can also be used for playback of a tape that was recorded in the conventional VHS system. The "S" in the "S-Video Socket" stands for "SEPARATED Y/C" not for "S-VHS".



•Connection to a TV Set with S-Video Socket

Storing TV Broadcasts into your VTR

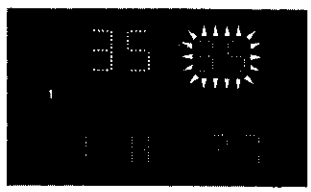


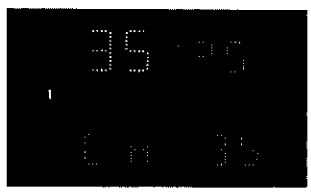
For example:
Set the programme position 35.

1 PRESET ○ FINE/NORMAL

2 ∨ ∧

3 TRACKING/V-LOCK – ○ + ○





4 PROG/CHECK ○

5 PRESET ○ FINE/NORMAL

Note:
While tuning, your video may lock onto several weak stations from distant transmitters. Should this occur press **TRACKING/V-LOCK** + or – again until a strong station is received.

Introduction

The VTR is fitted with its own tuner (just like a normal TV set) and can be pre-set to receive up to 99 TV broadcast stations.

Preparation

Confirm the TV is on and the VTR viewing channel is selected.

Operations

1 Press the **PRESET/FINE/NORMAL**.

2 Select programme position 35 for tuning by using ∨ ∧.

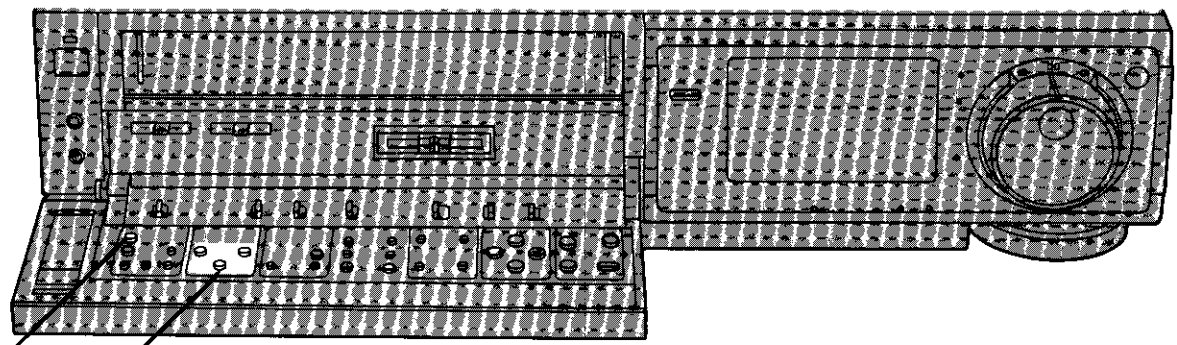
3 To search for the TV station press **TRACKING/V-LOCK** + or –; at this point the VTR will start to search for a broadcast TV station. If the required TV broadcast is not displayed, again press + or –.

4 Select the broadcasting system for the TV station tuned, by using **PROG/CHECK**.
In the Display, "1" (PAL) or "2" (MESECAM) will be displayed.
- 1 (PAL) . . . . . For receiving PAL system broadcasts
- 2 (MESECAM) . . . . . For receiving SECAM system broadcasts
  The MESECAM Indicator Lamp lights up.

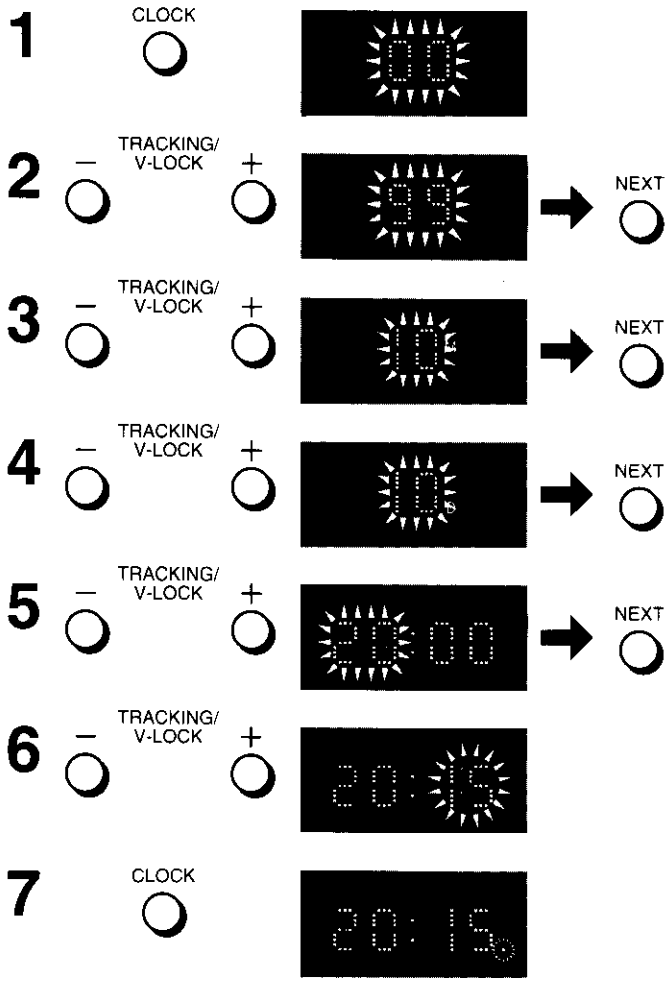
Repeat steps 2–4 for each channel you want to tune to a station.

5 Once all the broadcast stations are memorized into their appropriate station positions, press **PRESET/FINE/NORMAL** twice to set the VTR to normal operative mode.

Setting the Clock of the VTR



For Example: Set the clock for Sunday, October 10, 1999. 20:15.



In addition to setting the VTR clock from the remote controller, it can also be set directly from the VTR. The built-in digital clock employs the 24-hour system.

Preparation

Turn ON the VTR.

Operations

1 Press **CLOCK**.

2 Set the year by pressing **TRACKING/V-LOCK** + or −, and then press **NEXT**.

3 Set the month by pressing **TRACKING/V-LOCK** + or −, and then press **NEXT**.

4 Set the date by pressing **TRACKING/V-LOCK** + or −, and then press **NEXT**.

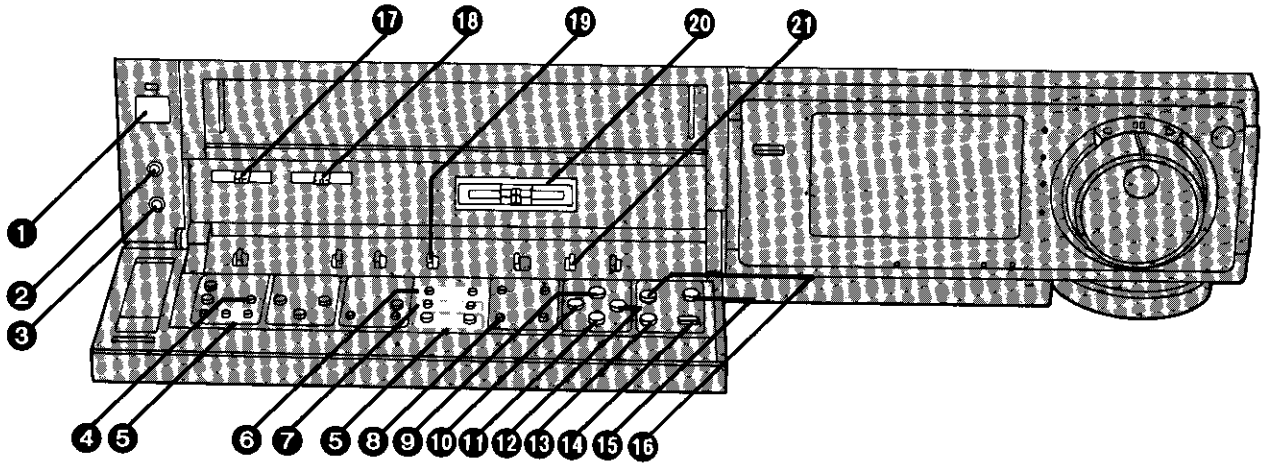
5 Set the hour by pressing **TRACKING/V-LOCK** + or −, and then press **NEXT**.

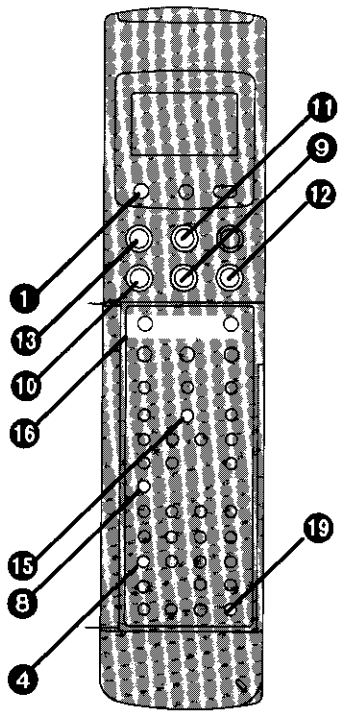
6 Set the minute by pressing **TRACKING/V-LOCK** + or −.

7 To start the clock from this setting, press **CLOCK**.

Note:
The clock operates for at least 60 minutes by its back up system in the event of power failure.

Controls, Indicators and Connection Sockets





Basic Controls

❶ VTR (Video Cassette Recorder On/Off)
The VTR is turned on and off by pressing this button. The indicator on the button is lit when the VTR is on.
- The VTR is also automatically turned on if a cassette tape is inserted.
- The VTR is also temporarily turned on if EJECT is pressed to eject a cassette tape. In this case, it is automatically turned off afterwards.

❷ MIC
Connect a microphone to this socket for recording. This socket has priority.

❸ PHONES
For connecting stereo headphones.

❹ RECORDING SP/LP
Press this button to select the tape speed required for recording.
SP gives the best picture quality.
LP gives the longest recording time.
This needs only to be set for recording since the VTR automatically selects the correct speed for playback.

❺ ∨ ∧
Press these buttons to select the required TV station. The VTR can handle up to 99 stations.

❻ OTR OFF (ONE-TOUCH TIMER RECORDING)
Press + or − to set the OTR ending time, "OTR" and "OFF" are lit. A single push changes the time in 1-minute steps, and holding down either button changes the time in 10-minute steps. The OTR OFF buttons must be first pressed within 8 seconds after the OTR starting time has been set, otherwise the starting time will be cancelled.

❼ OTR ON (ONE-TOUCH TIMER RECORDING)
Press + or − to set the OTR starting time. "OTR" and "ON" are lit. A single push changes the time in 1-minute steps, and holding down either button changes the time in 10-minute steps.

❽ AUDIO OUT
Press this button to select the desired sound tracks. Each press of this button changes the selected sound tracks as follows:
Hi-Fi stereo (L and R)—Hi-Fi mono left (L)—Hi-Fi mono right (R)—Normal (Hi-Fi off)...Hi-Fi Stereo...

❾ PLAY
Press this button to start playback. "▷" is lit.

Fine Tuning Procedure

1 Press **PRESET/FINE/NORMAL** twice.

2 Press **TRACKING/V-LOCK** + or − to obtain the best tuning condition.
- "AFC" Indicator will not be displayed.
- To return the tuning to its former state, press **AFC/VPS**.

3 Press **PRESET/FINE/NORMAL**.

Blanking of Unoccupied Programme Positions

1 Press **PRESET/FINE/NORMAL**.

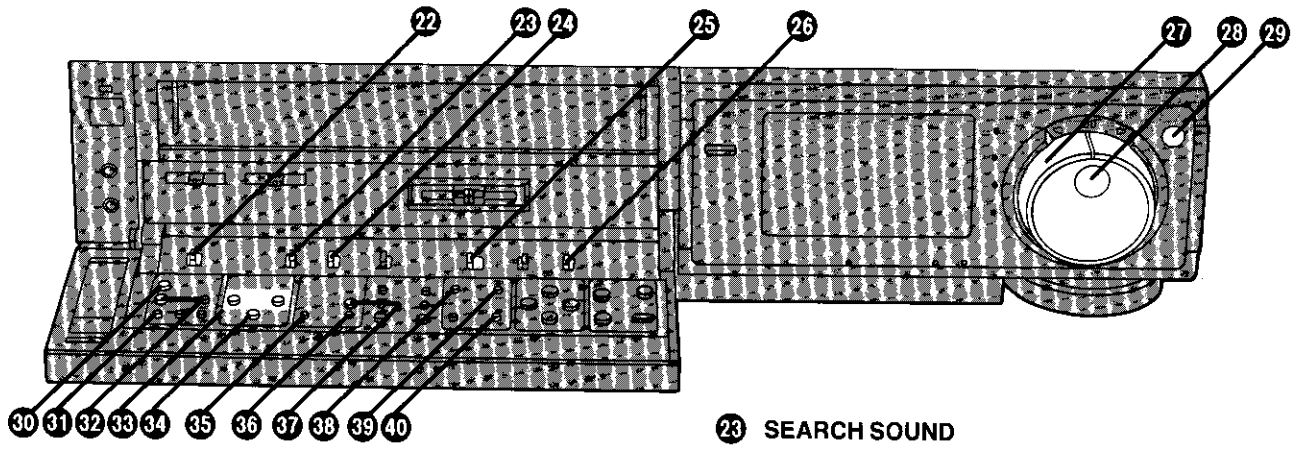
2 Select a programme position which you do not want to tune to a TV station, by using ∨∧.

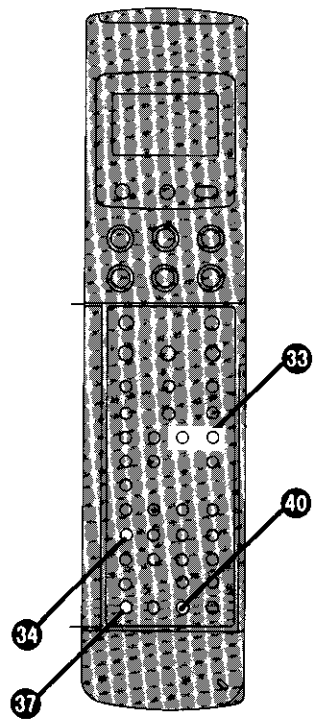
3 Press **CLEAR** ("– –" will be displayed in the Programme Position Indication).
- Repeat steps 2 and 3 for any programme positions on which no stations are to be tuned. Afterwards, these programme positions will be skipped during Up/Down selection of the programme position.
- To cancel the blanking of a programme position, select that programme position on the VTR and then press **CLEAR**.

4 Press **PRESET/FINE/NORMAL** twice.

Channel Indication	TV Channel	
	For Europe	For New Zealand
2–12	E2–E12	1–11
21–69	21–69	21–69
74–76	S1–S3	—
80–82	M1–M3	—
83–89	M4–M10	—
90–99	U1–U10	—
121–141	S21–S41	—

On the programme positions (channels) 1–89, normal TV stations can be preset.
On the programme positions (channels) 90–99, DBS stations can be preset, such as Pay TV (Premiere). Descramble operation is possible only for these programme positions.





Additional Controls

22 NOISE FILTER/EDIT

OFF: Set at this position for normal use of the VTR.

EDIT: Set at this position for editing operations (or dubbing the tape). The picture sharpness cannot be adjusted in this setting.

NOISE FILTER ON:
Use this setting when playing back tapes with inferior picture quality that could be caused, for example, by repeated dubbing.

- When playing back S-VHS recordings, the "NOISE FILTER ON" position will have no effect.

23 SEARCH SOUND

OFF: The sound is played back only during normal playback.

ON: The sound can also be heard during Cue playback and Review playback.

- There may be cases in which no audio is audible in the LP mode if connections between the VTR and TV are made with a DIN-DIN coaxial cable only.

24 Hi-Fi/NORMAL MIX

Sound is recorded on both the Hi-Fi and normal sound tracks.

OFF: Normally set at this position to reproduce the better sound available from the Hi-Fi track.

ON: Both sound tracks are played back mixed together. Use this setting when playing back a cassette tape which has been insert edited or audio dubbed.

25 TAPE SELECT

Set this switch according to the cassette tape being used so that the remaining tape time is indicated correctly.

~E195: For E30, -60, -80, -120, -180 and -195 tapes.
E240: For E240 tape.
E260: For E260 tape.

26 MONO

OFF: Normally set at this position.

ON: Only set at this position to record the normal sound during a stereo, bilingual or NICAM broadcast or if the stereo sound is distorted due to inferior reception conditions.

27 Shuttle Ring

With the Shuttle Ring, the playback speed can be adjusted step by step in both forward and reverse directions.

28 Jog Dial

The Jog Dial makes it easy to locate any desired frame with utmost precision.

29 JOG/SHUTTLE

Press this button to switch over to the jog and the shuttle operation.

⑩ **REW (REWIND)**
Press this button once when the tape is stopped to rapidly rewind it. For short Review playback (during normal playback), keep the button pressed for as long you want the tape to be played back at high speed in reverse direction. For longer Review playback (during normal playback), quickly press the button to start the Review playback.
"◁◁" is lit.
Hold down the button while the tape is rapidly rewinding to monitor the picture at high speed in the reverse direction.

⑪ **STOP**
Press this button to stop any playback or recording.

⑫ **FF (FAST FORWARD)**
Press this button once when the tape is stopped to rapidly wind it forward. For short Cue playback (during normal playback), keep the button pressed for as long you want the tape to be played back at high speed in forward direction. For longer Cue playback (during normal playback), quickly press the button to start the Cue playback.
"▷▷" is lit.
Hold down the button while the tape is winding toward to monitor the picture at high speed in the forward direction.

⑬ **PAUSE/STILL**
Press this button to stop the tape temporarily during playback and recording. Pressing the button again releases the pause.
If pressed during playback, a still picture is shown and "▯▯" is lit.
- If the pause is not released within 5 minutes, the VTR will automatically switch off the picture to protect the tape and the video heads.

⑭ **EJECT**
Press this button to eject the cassette tape.

⑮ **AV LINK**
Press this button to select the VTR mode or TV mode for AV LINK.

⑯ **REC**
Press this button on the VTR to start a recording. The two recording buttons on the remote controller have to be pressed together for the same function. "▷ REC" is lit.

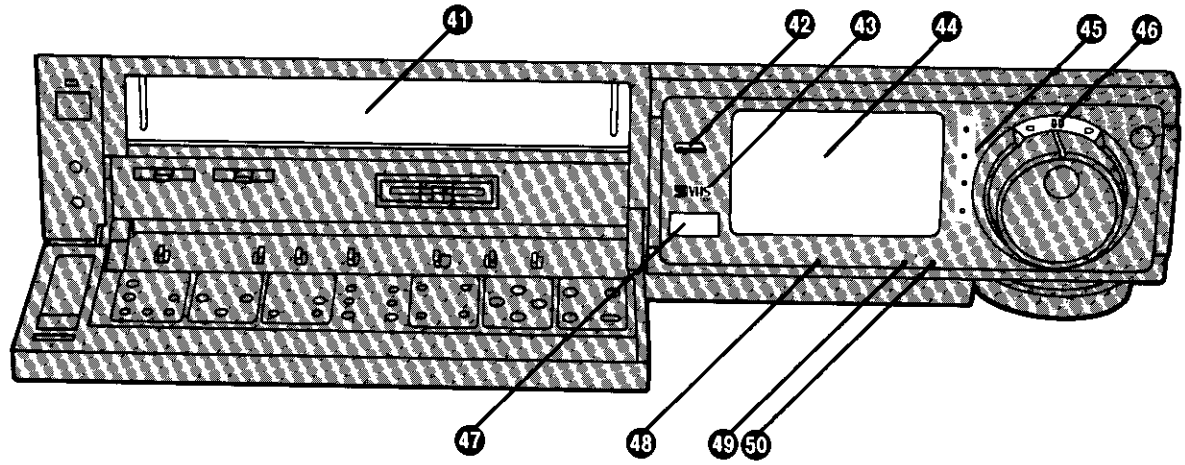
⑰ **PHONES LEVEL**
For adjusting the volume level of connected stereo headphones.

⑱ **PICTURE**
Use this control to adjust the sharpness of the picture.

⑲ **REMOTE MODE (VTR 1/2)**
VTR 1: Set at this position on both the VTR and remote controller for normal use with one VTR.
VTR 2: Set at this position when using two Panasonic VTRs.
This allows the remote controller to be set for operating VTR 1 or VTR 2.

⑳ **Hi-Fi REC LEVEL**
Use this control for adjusting the recording level to peak at +4 dB on the recording level indicator.

㉑ **S-VHS**
When making a recording on an S-VHS cassette tape, select the desired recording format with this switch.
ON: The recording will be made in the S-VHS format.
The S-VHS indicator lights up.
OFF: The recording will be made in the VHS format.
The S-VHS indicator does not light up.
(It is possible to make a recording on an S-VHS cassette tape in the VHS format, for example, in order to play back the tape on another VHS VTR.)
- When using VHS cassettes, the recording is made in the VHS format irrespective of the position to which this switch is set.
- For playback, it is not necessary to operate this switch.
- When a tape which was recorded in the S-VHS format is played back on a conventional VHS VTR, it is not possible to obtain playback picture.

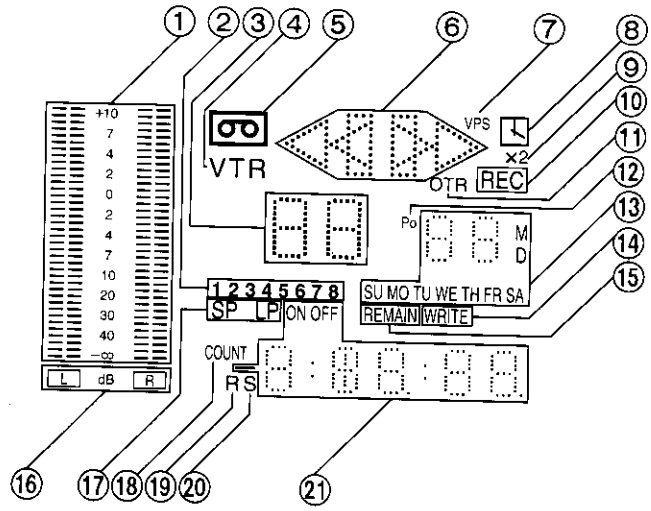


41 Cassette Compartment

42 PUSH-OPEN
Push this button to open the control panel.

43 S-VHS Indicator

44 Multi-Function Display



① Audio Level Meter
② Timer Programme Number
③ Channel Display
④ VTR Indicator
⑤ Cassette-in Indicator
⑥ Tape Running Display
⑦ VPS Indicator
⑧ Timer Recording Indicator
⑨ Double Speed Indicator
⑩ Recording Indicator
⑪ OTR Indicator
⑫ Position Indicator
⑬ Date Display
⑭ Write Indicator
⑮ Remaining Tape Time Indicator
⑯ Audio Output Mode Indicators
⑰ Tape Speed Indicator
⑱ Counter Mode Indicator
⑲ Repeat Indicator
⑳ Search Indicator
㉑ Clock/Counter Display

45 Indicator Lamps for Bilingual, Stereo and NICAM Reception
When receiving a TV programme, the type of sound system in which it is broadcast is automatically indicated.

46 Jog/Shuttle Indicator
This indicator lights up when the Jog/Shuttle Button is pressed.

47 Infra-red Remote Control Receiver Window
Receives the signals from the remote controller.

48 MESECAM Indicator

49 Audio Dubbing Indicator

50 Insert Editing Indicator

㉚ CLOCK
Press this button to initiate date and time settings. After the time has been entered correctly, this button is pressed again to memorize the setting.

㉛ PRESET/FINE/NORMAL
Press this button to initiate TV station settings for the tuner.

㉜ PROG/CHECK
This button is used to select the programme number for timer recording. Number "1, 2, 3... or 8" is lit. The button is also used to display details of a preset timer recording.

㉝ TRACKING/V-LOCK
For manual tracking adjustment
The + and − buttons are used to adjust the tracking when, for example, noise bars on the picture are better removed manually than by the automatic digital tracking control. After making a manual adjustment, press both buttons together to return to automatic digital tracking control.
Manual tracking adjustment is sometimes necessary to reproduce good Hi-Fi sound and picture quality when playing back tapes that have been recorded on another VTR.

For slow tracking adjustment
When noise bars appear during Super Still, Super Still Advance or Super Fine Slow playback, switch over to slow playback and adjust with the "+" or "−" Button to reduce the noise bars.

For vertical locking adjustment
Use the + and − buttons to minimize any vertical jitter during still-picture playback.

For setting the clock and timer recording
(Remote controller: No function)
These buttons are also used for selecting the different time units when setting the clock to the present time, and for setting the data necessary for timer recording.

㉞ NEXT
Press this button to memorize preset data and to change to the next variable when setting the clock or timer. At each push, the flashing indication on the date display changes in the order YEAR, MONTH, DATE, HOUR, MINUTE.

㉟ AFC/VPS
After performing manual fine tuning of a TV station, resetting to automatic tuning is possible.
The VPS function for timer recording can be cancelled or activated again.
- This model is not equipped with VPS function. The VPS function becomes operative when the VTR is equipped with the optional VPS decoder. Consult your authorized video dealer.

㊱ CLEAR
Use this button for branking of unoccupied programme positions.

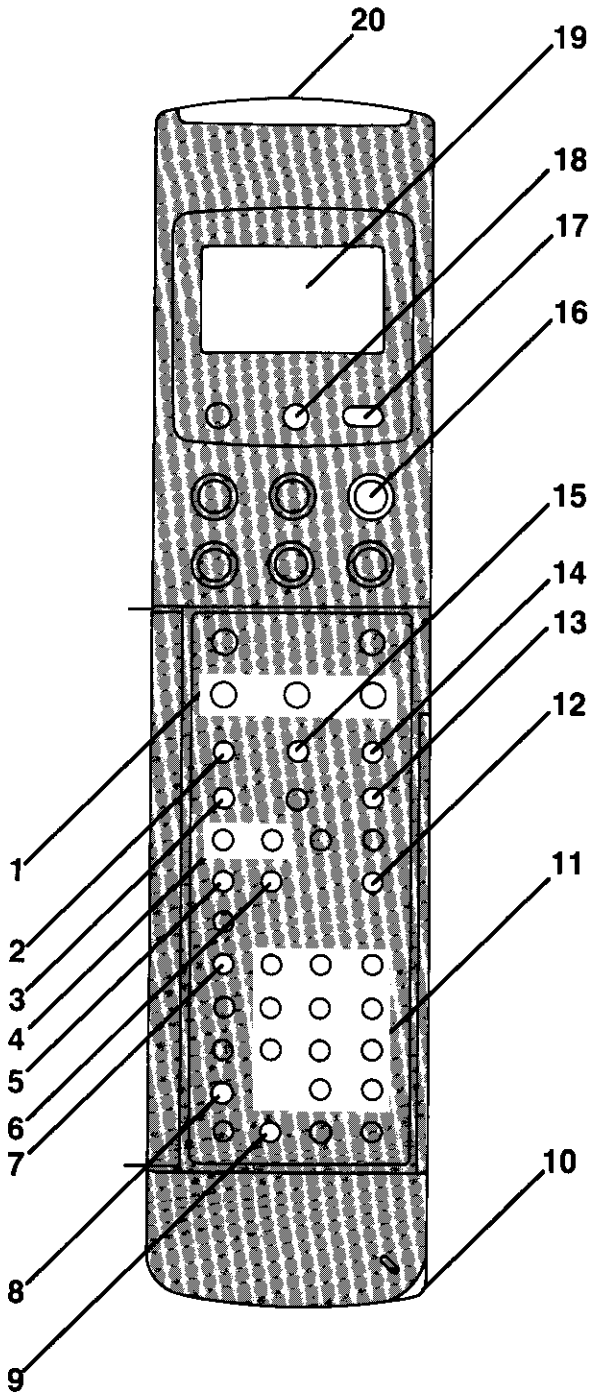
㊲ TIMER REC
This button used to set the VTR for timer recording. When set for timer recording, ⏲ is lit, and the VTR will turn itself on automatically to begin recording at the preset time.
The VTR can only be operated manually when the timer recording function is off. Timer recording can be set whether the function is on or off, but recording will only be performed when the function is on.
If the timer recording function is on, but no video cassette is inserted or no timer recording has been programmed, the ⏲ will flash to warn that timer recording cannot be performed.

㊳ AUDIO DUB
Press this button to set up the VTR for audio dubbing. Audio Dubbing indicator is lit.

㊴ INSERT
Press this button to set up the VTR for insert editing. Insert Editing indicator is lit.

㊵ PAL/MESECAM
This button should be set according to the colour TV system used during recording and playback.
When the MESECAM Indicator is lit, the MESECAM system is selected.

Infra-Red Remote Controller



Infra-Red Remote Controller

1 SEARCH
Press the Search Button to activate the Search Function, and the VTR changes over to the Still Playback mode.
When the "+" Button is now pressed once, the tape will be played back at 1/30th of normal playback speed. At every further press of the "+" Button, the playback speed will be increased step by step.
- By pressing the "−" Button, the playback speed can be changed in the reverse direction (Still Playback—Reverse Slow Motion Playback—Reverse Playback—Double Speed

2 CLOCK/COUNTER
This button is used to switch between the display of the clock and the tape counter.
The numbers on the tape counter only change for recorded segments of the tape.

3 MONITOR
Keep this button depressed during playback to watch TV broadcast.
- When the VTR is connected to the TV set via 21-pin scart cable, this function does not work.

4 INDEX
For the index search function.

5 REPEAT
For the Repeat Playback function.

6 ZERO STOP
For the ZERO STOP function.

7 PROG
For programming of timer recording.

8 VPS
The Video Programme System (VPS) is a very convenient system which assures that the TV programmes you have programmed for timer recording will be recorded exactly from beginning to end, even if the actual broadcasting time differs from the scheduled time due to delayed start or extension of the programme duration. Also, if a programme is interrupted and, for example, some special news are inserted, the recording will also be interrupted automatically and resumed when the programme continues.

9 CANCEL
Press this button to cancel the settings made for a timer recording.

10 Bar Code Reading Section
After the Bar Code Reader is turned on, the tip lights in red.

11 Ten Key
- for selecting the programme positions

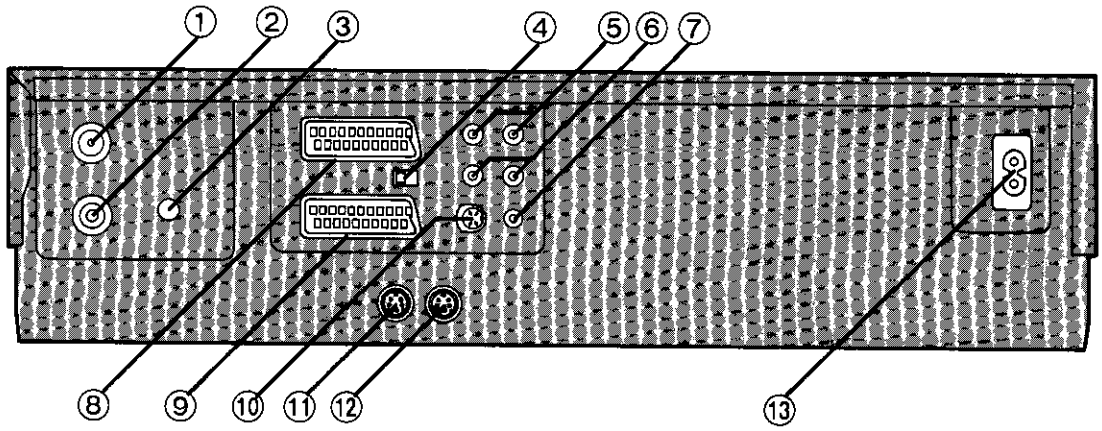
9: MO-SA (9)▶

19: (-/--) → SU (1) → MO-SA (9)▶

- for the Time Search function
- for programming of timer recording

12 TIME SEARCH
For the Time Search function

13 INPUT SELECT
Press this button to select the A1–A3 external recording source.
A1: Through the 21 pin AV1 socket.
A2: Through the 21 pin AV2 socket.
A3: Through the S-VIDEO IN and AUDIO IN sockets. (AV3)



① **RF OUT**
Use this to connect to the aerial terminal on a TV set.

② **RF IN**
Use this to connect an external aerial.

③ **CH ADJ.**
Tape playback picture, etc. transmit with channel 36 but if it is occupied by local station, it can be adjusted ±4 ch.

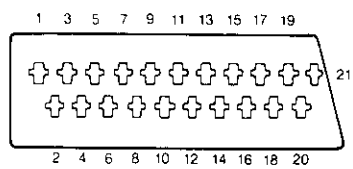
④ **NORMAL/S-VIDEO OUT/TEST SIGNAL**
NORMAL: Normally set to this position.
S-VIDEO OUT:
Set to this position when connecting the VTR to a TV set equipped with 21-pin Euro-AV Connector with pins for separate Y/C signal input.
TEST SIGNAL:
Set to this position when tuning the TV into the VTR.

⑤ **AUDIO IN (AV3)**
Use these to connect the sound to a stereo audio system.

⑥ **AUDIO OUT**
Use these to connect the sound to a stereo audio system.

⑦ **SYNC. EDIT**
Connecting to a VHS/VHS-C Movie equipped with Synchro Edit Function.

⑧ **AV1**
This 21-pin scart terminal carries input and output signals for both picture and sound. TV sets equipped with a similar socket can be connected here.



NORMAL	S-VIDEO
1 AUDIO OUTPUT CH2 (R)	1 AUDIO OUTPUT CH2 (R)
2 AUDIO INPUT CH2 (R)	2 AUDIO INPUT CH2 (R)
3 AUDIO OUTPUT CH1 (L)	3 AUDIO OUTPUT CH1 (L)
4 AUDIO GND	4 AUDIO GND
5 BLUE GND	5 No connection
6 AUDIO INPUT CH1 (L)	6 AUDIO INPUT CH1 (L)
7 BLUE	7 No connection
8 SWITCHING VOLTAGE	8 SWITCHING VOLTAGE
9 GREEN GND	9 No connection
10 No connection	10 No connection
11 GREEN	11 No connection
12 No connection	12 No connection
13 RED GND	13 No connection
14 BLANKING GND	14 No connection
15 RED	15 C OUT
16 BLANKING	16 No connection
17 VIDEO OUTPUT GND	17 VIDEO OUTPUT GND
18 VIDEO INPUT GND	18 VIDEO INPUT GND
19 VIDEO OUTPUT	19 Y OUT
20 VIDEO INPUT	20 VIDEO INPUT
21 GND	21 GND

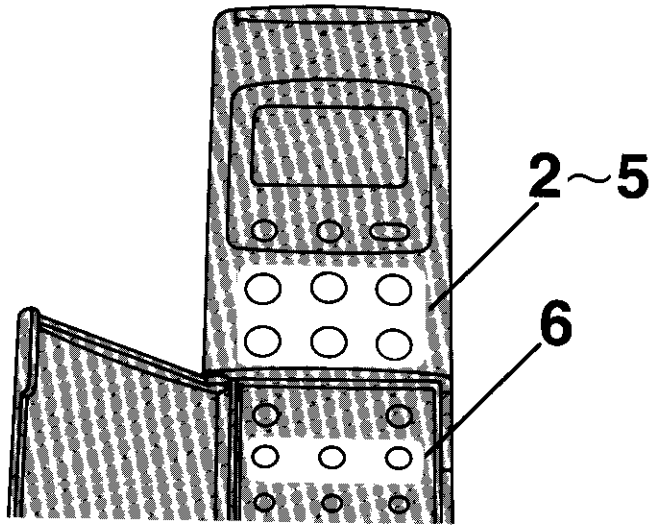
⑨ **AV2**
This connector can be used to connect the unit with a pay TV decoder or as the AV input connector for the signals from another unit.

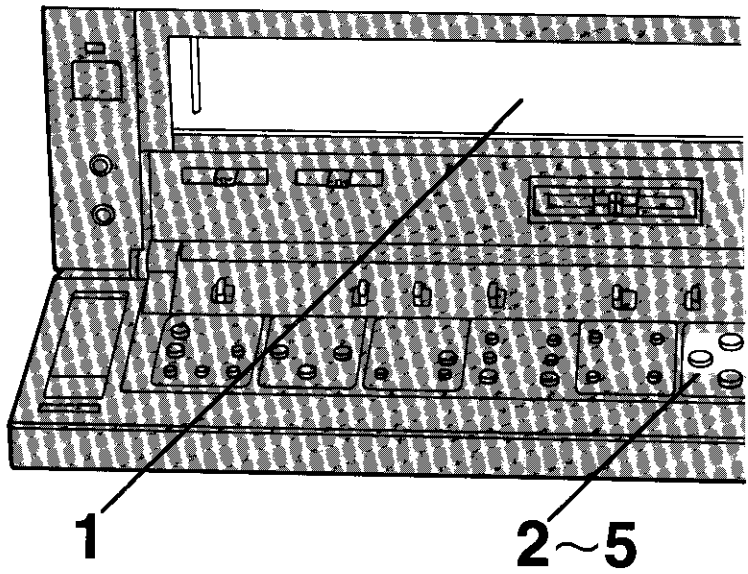
⑩ **EDIT**
By connecting the optional Editing Controller (VW-EC300E/VW-EC310E) to this socket, such editing functions as Assemble Editing, Insert Editing and Audio Dubbing can be performed more quickly and efficiently between two VTRs or between a VTR and a camera recorder.

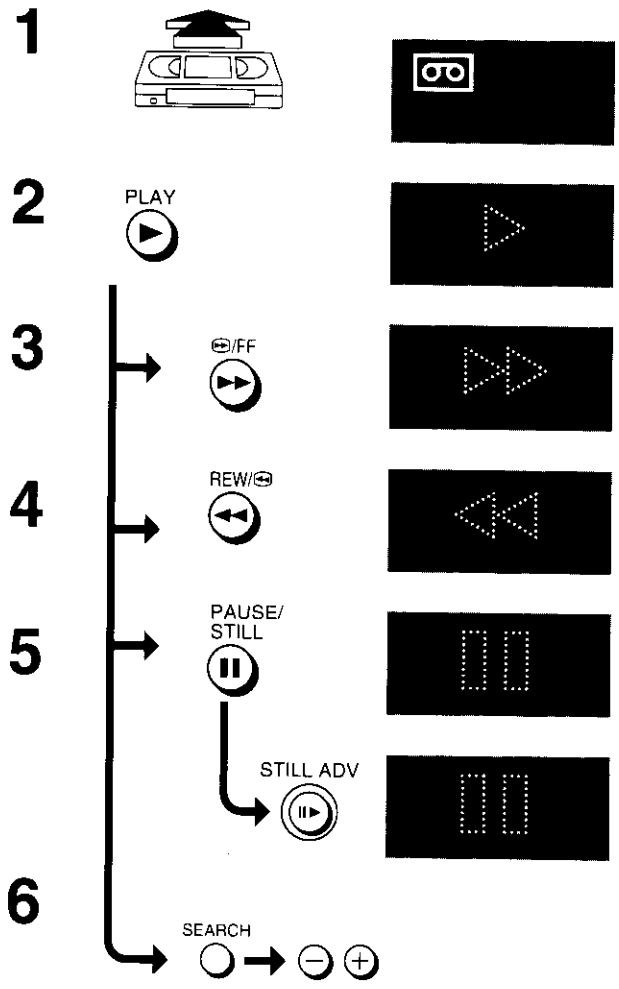
⑪ **S-VIDEO IN (AV3)**
For connecting to another VTR or to a signal source that has a S-Video Output Socket.

⑫ **S-VIDEO OUT**
For connecting to another VTR or to a TV set that has a S-Video Input Socket.

Playback







Introduction

The playback controls allow you to view at normal speed, to search for a specific scene with the tape moving faster than normal, to freeze into a still picture, to advance this still picture frame by frame, and to view in slow-motion.

Operations

1 Insert a recorded cassette tape.
- If it has already been inserted, press **VTR** to turn the unit on.
  Turn on the TV and select 21 pin scart terminal input or station number which has been tuned to channel 36 for VTR playback.

2 Start viewing the picture by pressing **PLAY**.

3 To search for a specific scene while viewing the picture, press and hold down **FF** to search ahead.
For longer Cue playback, quickly press the button to start the Cue playback. To change back to normal playback, press **PLAY**.

4 To search for a specific scene while viewing the picture, press and hold down **REW** to search back.
For longer Review playback, quickly press the button to start the Review playback. To change back to normal playback, press **PLAY**.

5 To interrupt playback for a still picture, press **PAUSE/STILL**.
To continue the normal playback, press **PLAY** or this button again.
To advance one frame of the still picture, press **STILL ADV**.

14 RESET
To reset the tape counter (elapsed time) to "0:00.00".
- The Tape Counter is automatically reset to "0:00.00" when the video cassette is inserted.

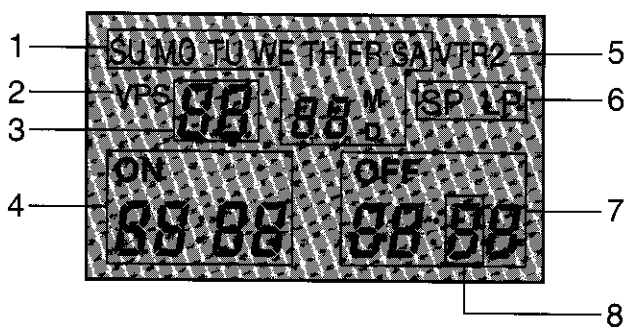
15 TAPE REMAIN
Press this button to have the approximate remaining tape time displayed. "REMAIN" is lit while the remaining tape time is displayed.

16 STILL ADV
Press this button during still playback. Each time you press this button, the still picture is advanced.

17 TRANSMIT
Press this button to transmit to the VTR data that has been set on the remote controller by either manual means or by bar codes.

18 SCANNER ON/OFF
To turn the Bar Code Reader on and off.

19 Display



1 Date Display
2 VPS Indicator
3 Programme Position Display
4 Start Time Display
5 Remote Control Mode Indicator
6 Tape Speed Indicator
7 End Time Display
8 Check Indicator

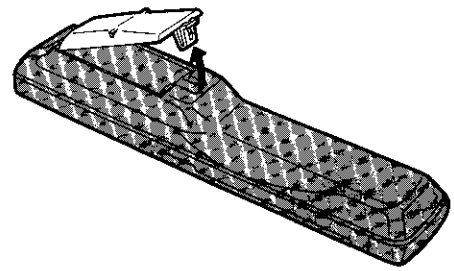
20 Infra-red Transmitter
The programming data are transmitted from here to the VTR.

Power source for the remote controller
The remote controller is powered by 2 UM3 or R6 size batteries. The life of the batteries is about one year, although this depends on the frequency of use.

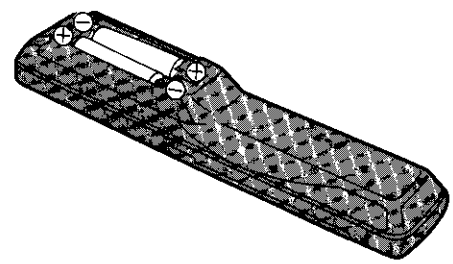
Precautions for battery replacement
- Load the new batteries with their polarity (+ and −) aligned correctly.
- Do not apply heat to the batteries, or an internal short-circuit may occur.
- If you do not intend to use the remote controller for a long period of time, remove the batteries and store them in a cool and dry place.
- Remove spent batteries immediately and dispose of them.
- Do not use an old and a new battery together, and never use an alkaline battery with a manganese battery.

Loading the batteries

1 Remove the battery compartment lid.

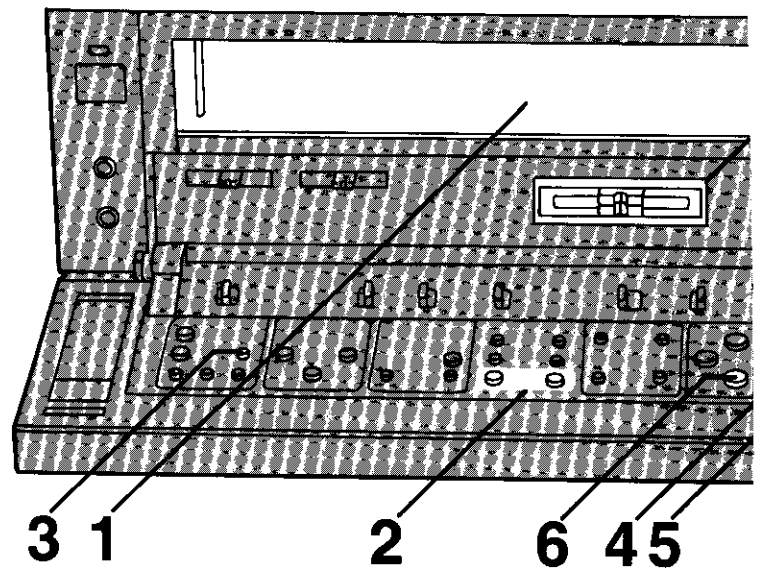


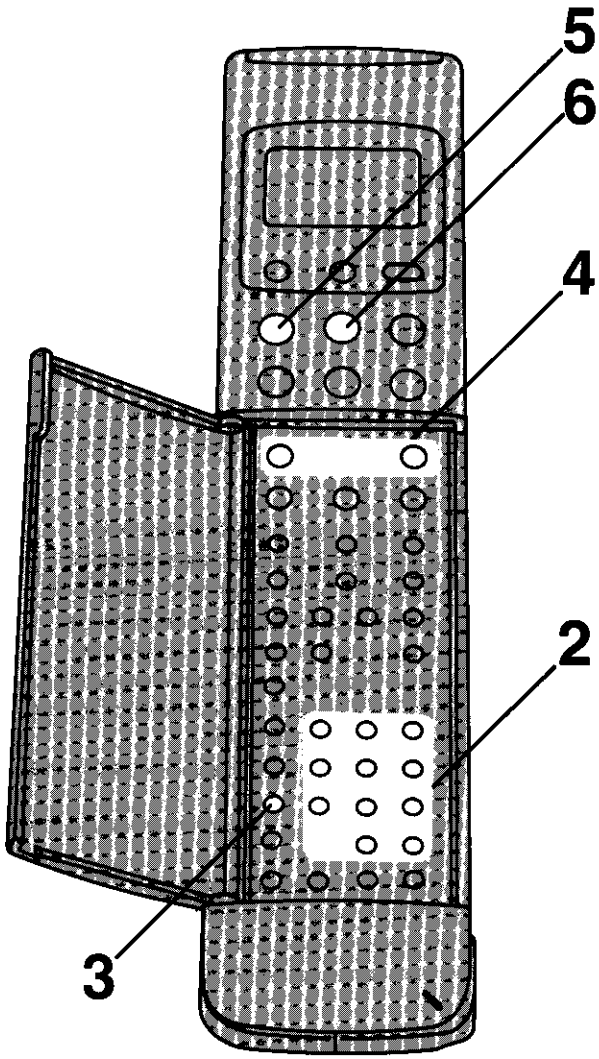
2 Place the batteries in the battery compartment according to the polarity indicated inside the battery compartment.



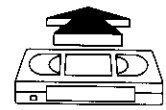
3 Replace the lid.

On-the-spot Recording





1



2

3

RECORDING SP/LP

4

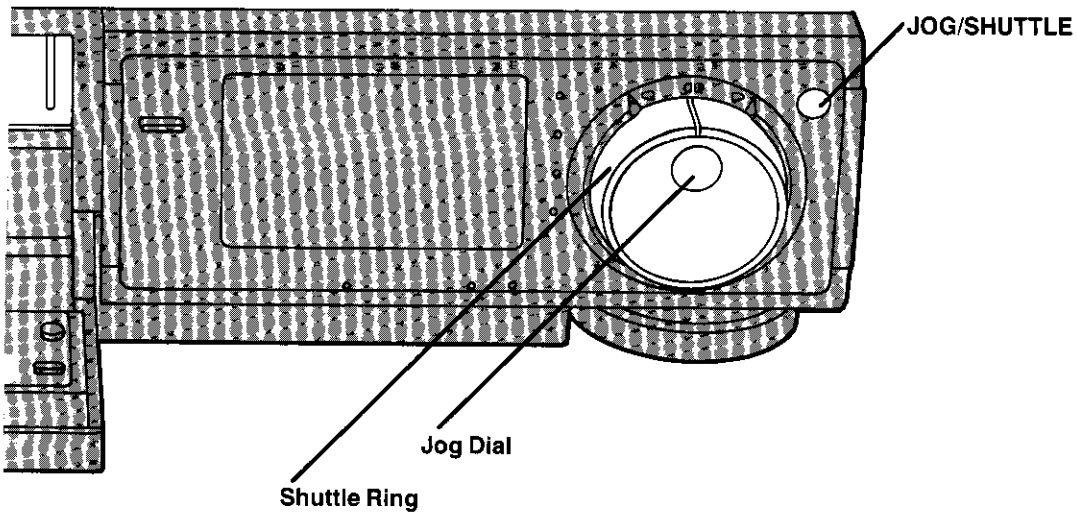
REC

5

PAUSE/ STILL

6

STOP



6 To activate the Search Function, press **SEARCH**, and adjust the playback or the reverse playback speed as necessary by pressing + or −.
To change back to normal playback, press **PLAY**.

JOG/SHUTTLE

1 During any playback mode, press **JOG/SHUTTLE**, and the VTR will be set to still mode.

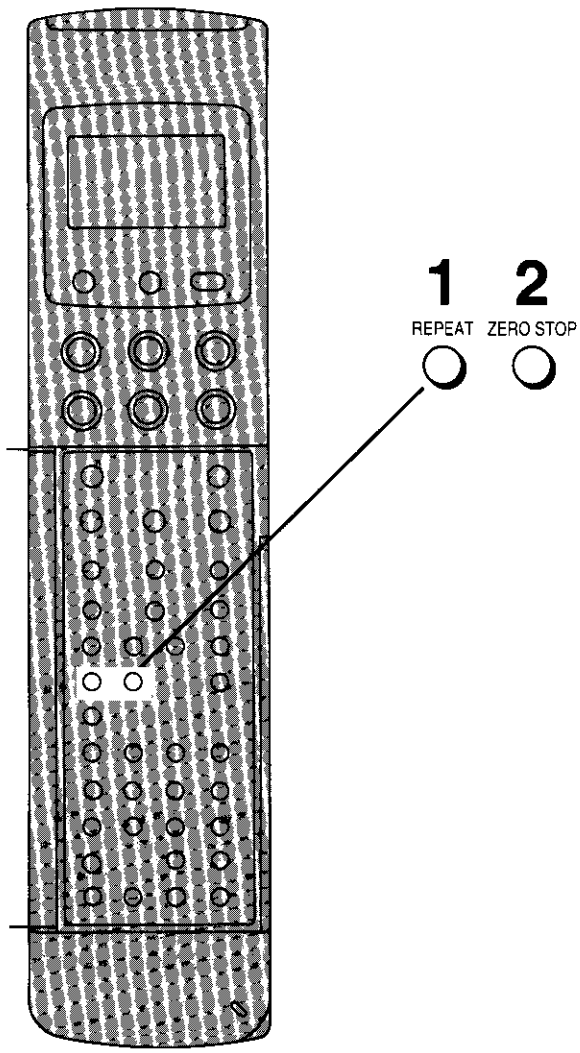
2 Using the Shuttle Ring, select the desired playback speed in both forward and reverse directions.

3 Using the Jog Dial, locate the desired picture exactly.

Notes:

- If Cue or Review playback continues for more than 10 minutes, the VTR will automatically switch over to the normal playback mode. If the Still and Slow playback continues for more than 5 minutes, the VTR will automatically switch over to the stop mode.
- In Cue and Review playback, noise bars and distortions can occur on the screen. However, this is not a malfunction.
- Audio reproduction of linear (conventionally recorded) stereo tapes will be monaural when played back on the FM Hi-Fi video recorders.
- In "LP" mode only:
  1. During any playback mode other than normal playback, the picture may contain some noise bars or vibration, the colour may be unstable or colourless.
  2. When playing back a tape which was recorded on another VTR, it may be necessary to adjust the Tracking Control. In some cases the picture quality may still be inferior. This is due to limitation of format.
- During Playback, set **PAL/MESECAM**.
  PAL: When playing back a tape recorded in the PAL system
  MESECAM: When playing back a tape recorded in the MESECAM system
  MESECAM Indicator lights up.
- Even after the VTR has been set to the stop mode, its head cylinder will rotate for about 20 minutes so that the playback picture will appear promptly on the TV screen.

Automatic Features



Introduction

The VTR incorporates a number of automatic features for easy operation.

1 **Repeat Playback**
To repeat playback from the beginning of tape to the end of the recorded segment, press **REPEAT**.

2 **ZERO STOP**
To fast forward or rewind to the counter 0:00.00, press **ZERO STOP**.

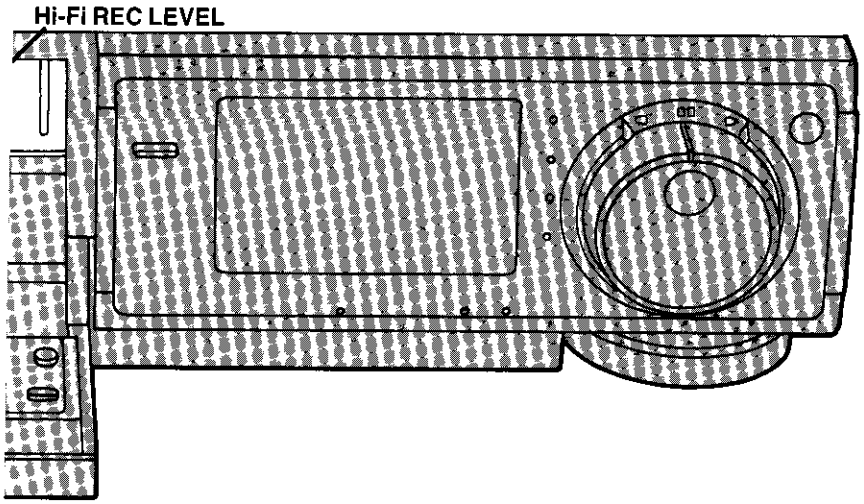
Automatic switching on
When a cassette is inserted, the VTR turns itself on automatically.

Automatic playback
When a cassette without an erasure prevention tab is inserted, the VTR starts playback automatically.

Automatic rewinding
When the tape reaches its end during recording (except for OTR and timer recording) or playback, it will automatically be rewound to the beginning.

Automatic switching off and ejection
When the VTR is switched off, an inserted cassette can be ejected simply by pressing **EJECT**. The VTR will eject the cassette and automatically turn itself off again.

Automatic head cleaning
This VTR automatically removes tape particles and dust from the video heads to ensure continuously superior picture quality. While the head cleaner is working, some mechanical noise can be heard from the VTR, this not being a malfunction.



Introduction

You can record a TV programme without turning on the TV, and you can record one TV programme while viewing another.

Operations

1 Insert a cassette tape with an intact erasure prevention tab.
- If it has already been inserted, press **VTR** to turn the unit on.

2 Select the required TV station on the VTR by pressing ∨∧.

3 Select the tape speed SP or LP.

4 Start recording by pressing **REC**.
- When a video cassette with broken out tab is inserted, the "⏺" indication will flash, and an alarm sound will be produced to indicate that recording is not possible.

5 To interrupt recording, press **PAUSE/STILL**, and press again to continue recording.
- If you leave the VTR in the pause mode for more than 5 minutes, the VTR will automatically switch over to the stop mode to protect the tape and the video heads.

6 To stop recording, press **STOP**.

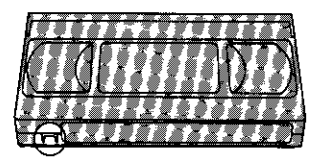
Recording one TV programme while viewing another

1 Use the on-the-spot recording operations.
2 Select the TV programme on your TV set you wish to view at the present time.

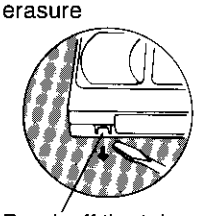
Adjustment of the Hi-Fi Audio Recording Level

Setting the **Hi-Fi REC LEVEL** to the centre "5" position (click stop) assures satisfactory audio recording results in most cases. When using the VTR as a Hi-Fi audio recorder or when producing your own video tapes, it may be desirable to adjust the **Hi-Fi REC LEVEL** to some other position.
(It is recommended to adjust so that peaks in the audio level reach about +4 dB.)
- The sound to be recorded on the "normal" audio track will be adjusted automatically.

Erasure Prevention Tab

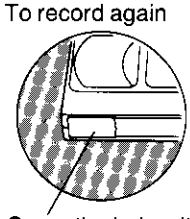


To prevent accidental erasure



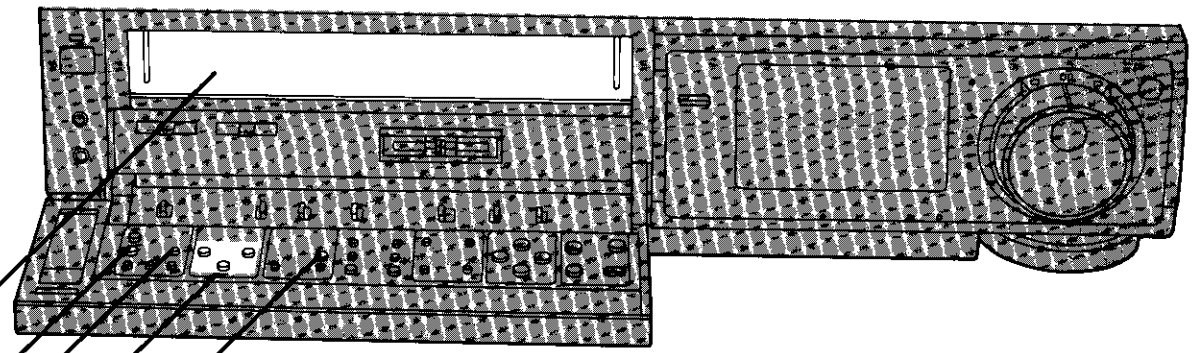
Break off the tab with a screwdriver.

To record again



Cover the hole with adhesive tape.

Timer Recording

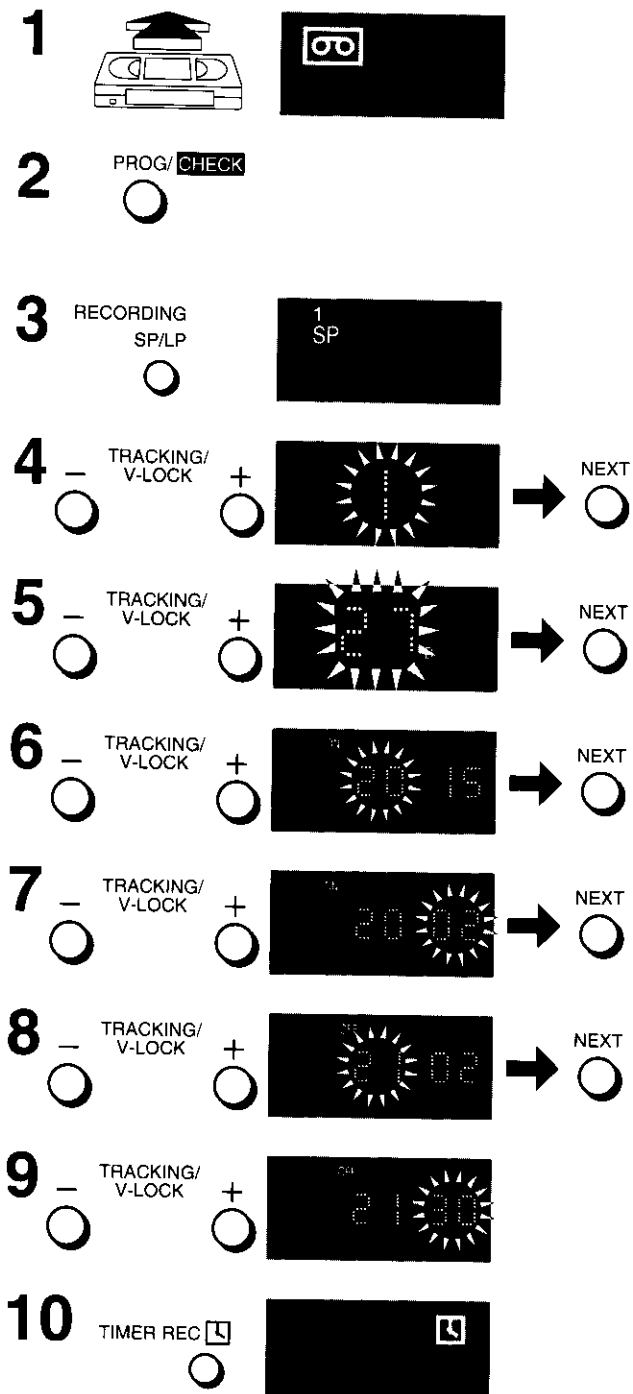


1 2 3 4~9 10

Introduction

Up to 8 programmes can be recorded over the following month by setting the timer.
This can also handle recording of daily and weekly programmes.
The daily recording can be set according to 3 patterns:
Monday to Friday
Monday to Saturday
Sunday to Saturday

For Example:
Programming a timer recording for a TV programme that will be broadcast on Wednesday, October 27, from 20:02 to 21:30, on programme position (channel) 1, on timer programme number 1.
(Present date=October 10, 1999)



Operations

1 Insert a cassette tape with an intact erasure prevention tab.
- If it has already inserted, press VTR to turn the unit on.

2 Select the programme number by pressing **PROG/CHECK**.

3 Select the recording speed by pressing **RECORDING SP/LP**.

4 Select the TV station by pressing **TRACKING/V-LOCK** + or − and memorize by pressing **NEXT**.

5 Set the date by pressing **TRACKING/V-LOCK** + or − and memorize by pressing **NEXT**.
- For daily recording, select one of the three different daily patterns by pressing **TRACKING/V-LOCK** + or −.
- For weekly recording, select the day by pressing **TRACKING/V-LOCK** + or −.

6 Set the starting time hour by pressing **TRACKING/V-LOCK** + or − and memorize by pressing **NEXT**.

7 Set the starting time minute by pressing **TRACKING/V-LOCK** + or − and memorize by pressing **NEXT**.

8 Set the ending time hour by pressing **TRACKING/V-LOCK** + or − and memorize by pressing **NEXT**.

9 Set the ending time minute by pressing **TRACKING/V-LOCK** + or −.
- There is no need to press **NEXT**.
- Repeat steps 2 to 9 for the other programmes.

10 Activate timer recording by pressing **TIMER REC**.
- ⏲ is displayed and the VTR is set in the standby mode so that it cannot be operated manually.
- If you want to operate the VTR manually, press **TIMER REC**.
  To reactivate the timer press this button again.

Confirming the timer settings

Select the programme number to be checked by pressing **PROG/CHECK**.
The preset channel and start and ending times of the timer recording will be indicated for about 12 seconds.

Cancelling the timer settings

- Release from the standby mode by pressing **TIMER REC**.
- Select the programme number to be cancelled by pressing **PROG/CHECK**.
- Press **TRACKING/V-LOCK** + and − simultaneously for more than 3 seconds.

VPS (Video Programme System)

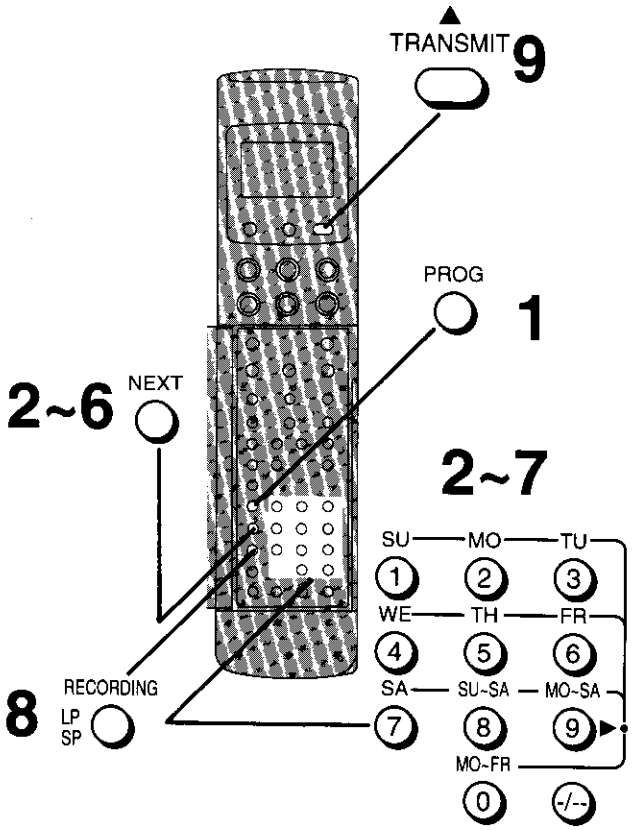
The Video Programme System (VPS) is a very convenient system which assures that the TV programmes you have programmed for timer recording will be recorded exactly from beginning to end, even if the actual broadcasting time differs from the scheduled time due to delayed start or extension of the programme duration. Also, if a programme is interrupted and, for example, some special news are inserted, the recording will also be interrupted automatically and resumed when the programme continues.

- **AFC/VPS** can be pressed in any of the operation steps 3–9 in order to cancel the VPS function.
- If the actual broadcasting times of timer recordings overlap (regardless of whether they are VPS-controlled), the recording that starts first has always priority, and the recording of the later beginning programme will start only after the first timer recording has finished.
- When the VPS signal drops out because the broadcast signal is weak, or when a broadcasting station does not transmit a regular VPS signal, the timer recording will be performed in the normal mode (without VPS) even if it was programmed for VPS.
  In this case, even if the timer recording is performed, whatever has been programmed will not be cancelled at that particular time but at 4 a.m. on the following day.
- This model is not equipped with VPS function. The VPS function becomes operative when the VTR is equipped with the optional VPS decoder. Consult your authorized video dealer.

Note:

If a timer recording is not performed to the end (due to insufficient tape or cancellation by the user), the programmed timer recording data will be cancelled from the memory by 4 a.m. two days later.
However, if the Timer Record Function is activated or an OTR recording is being performed at that time, the programmed timer recording data will be cancelled at 4 a.m. the next day.

Using the Remote Controller



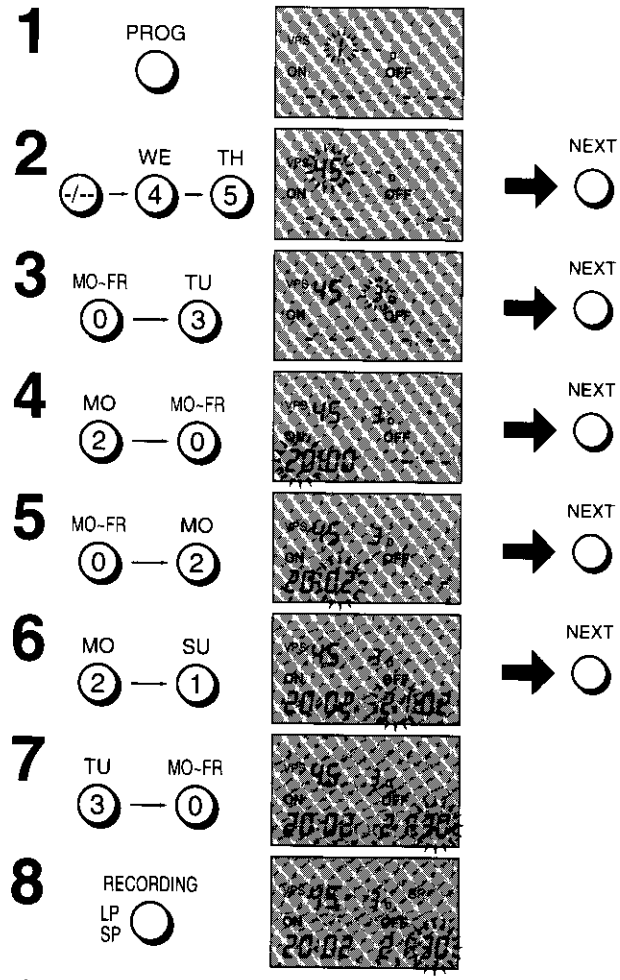
How to select the programme position (channel)
To select a figure between 1 and 9, press the numeric button corresponding to the number.
To select a 2-digit figure, first press the "–/– –" button and then press the two corresponding numeric buttons.

How to set the Date and the Starting & Ending Times for Timer Recording
To select a figure between 0 and 9, first press the numeric button "0" and then press the numeric button corresponding to the number.
To select a 2-digit figure, press the two corresponding numeric buttons one after the other.

2	0 — 2
15	1 — 5
30	3 — 0

- The second button must be pressed within 5 seconds after the first button.

For Example:
When programming a timer recording for a programme that will be broadcast on channel position 45 on the 3rd of the month, from 20:02 to 21:30.



Note:
If no operation is performed on the Remote Controller for more than 25 seconds, it will automatically switch over to the power-saving standby condition and the indications on the Display will disappear. In this case, the data which have not yet been transmitted to the VTR will be cancelled.

Operations

1 Start programming by pressing **PROG**.
The input field for the programme position on the display of the remote control unit flashes.

2 Enter the programme position and then press **NEXT**.

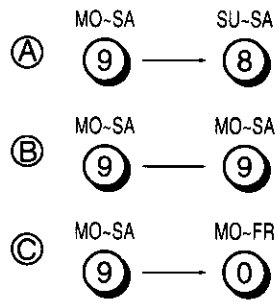
3 Enter the date and then press **NEXT**.

Timer Recording Every Day at the Same Time
For this timer function, several groups of days can be selected.

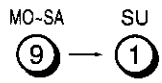
Ⓐ Daily recording from Sunday to Saturday

Ⓑ Daily recording from Monday to Saturday

Ⓒ Daily recording from Monday to Friday



Timer Recording on the Same Day Every Week at the Same Time
For Example, SU (Sunday).



4 Enter the starting time (hour) and then press **NEXT**.

5 Enter the starting time (minute) and then press **NEXT**.

6 Enter the ending time (hour) and then press **NEXT**.

7 Enter the ending time (minutes).

8 Select the desired tape speed ("SP" or "LP") by pressing **RECORDING SP/LP**.

9 Point the Infra-red Transmitter at the VTR Receiver Window and press **TRANSMIT**.
The transmitted data appear on the display and a repeated beep confirms the reception.

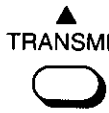
Turning VPS function On and Off
Press **VPS** in any of the operation steps 2 to 9.

Turning Timer On and Off
After programming a timer recording, the Timer Recording Indicator ⏲ lights up and the VTR can no longer be used for recording and playback. To make it possible to use the VTR, turn off **TIMER REC** ("⏲" goes out). To reactivate the timer, press this button again.

Timer Recording from External Picture/Sound Source
If Timer Recording is performed by a unit connected to the 21 pin scart terminals, press **INPUT SELECT** to select the A1 or A2 indicator for the programme position.
A1: Through the 21 pin AV1 socket.
A2: Through the 21 pin AV2 socket.
- AV3 can not be selected.

Checking of Timer Programming
- The VTR must be turned on.
- Make sure that the display of the Remote Controller is not on. If it is, turn it off with **SCANNER ON/OFF**.

Press **TRANSMIT**.
- If necessary, press **TRANSMIT** several times until the desired timer position is displayed.
- The programmed data will be displayed for about 12 seconds on the display of the VTR. To check the data on the next timer position, press **TRANSMIT** again.



Cancelling a Timer Programming
To cancel a programmed timer recording, this data must be displayed on the display of the VTR.

❶ Press **TRANSMIT**.
- If necessary, press **TRANSMIT** several times until the desired timer position is displayed.

❷ Press **CANCEL**.
- The programmed timer recording will be cancelled and dashes "– –" will appear on the display.

Search Function

VHS Index Search System

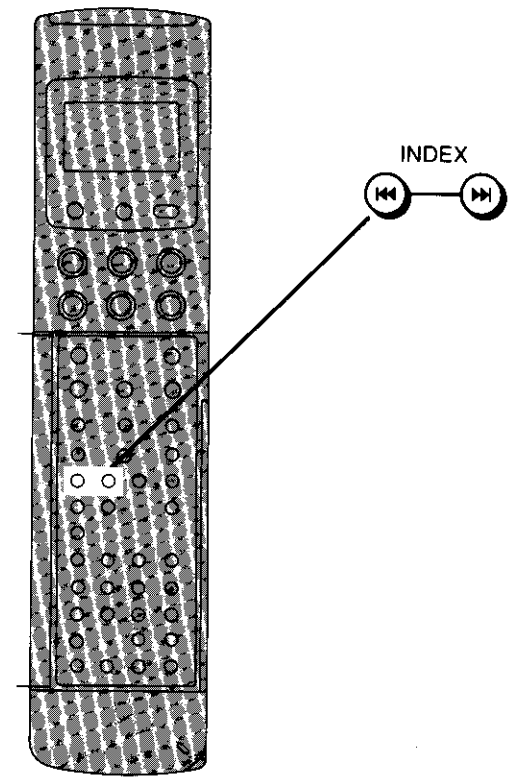
Introduction

It is very easy to find the beginning of each recording, because a special index signal is recorded at the start of each recorded segment on the tape.
Up to 20 index signals can be searched for in both directions.

Preparation

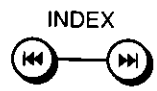
Set the VTR in the normal playback or stop mode.

For example:
Searching for the 2nd recorded segment on forward direction.



Operation

Start index search and select the 2nd recorded segment by pressing **INDEX ▶▶I** twice.



- For reverse direction, press **INDEX I◀◀**.
- After finding the specific recorded segment, playback starts.

Recording of Index Signals
While recording an index signal, the indication "WRITE" lights up for a few seconds. Index signals will be recorded automatically at the start of recording. It is also possible to record an index signal by pressing **REC** during recording. To mark your own reference point.

Notes:
- The Search function can only count the addresses correctly, if the index signals are spaced at least 3 minutes in the SP mode and 5 minutes in the LP mode.
- If there are unrecorded parts on the tape, or if recordings have repeatedly been made on the same tape portion, the search function may not work correctly.

Time Search

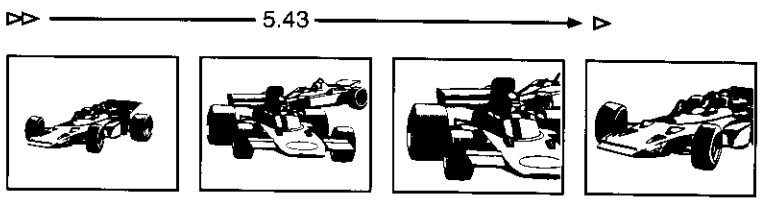
Introduction

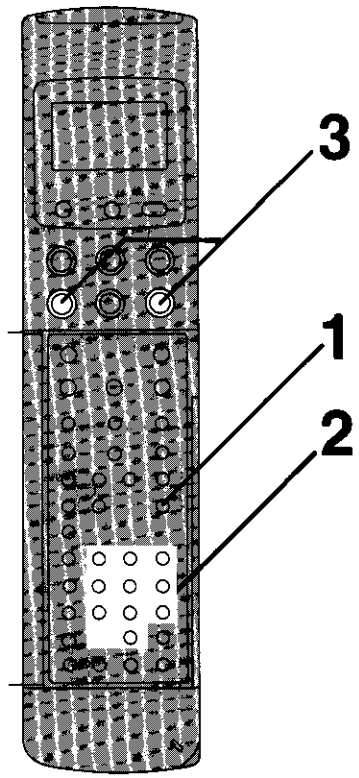
It is easy to search forwards or backwards along the tape by a specific amount of playback time to locate a scene or skip programme items of secondary interest.

Preparation

Insert a recorded cassette tape and set the VTR in the stop mode.

For example:
Searching for the recording 5 min. and 43 sec. after the start of playback.





1 TIME SEARCH

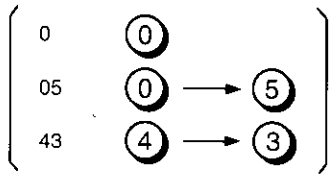
2

3 REW/◀◀ ▶▶/FF

Operations

1 Set to time search by pressing **TIME SEARCH**.

2 Enter the 5 min. and 43 sec. by pressing Ten Key.



3 Start searching by pressing **FF** or **REW**.
The playback starts after rewinding or fast forwarding to the tape position of the designated time.

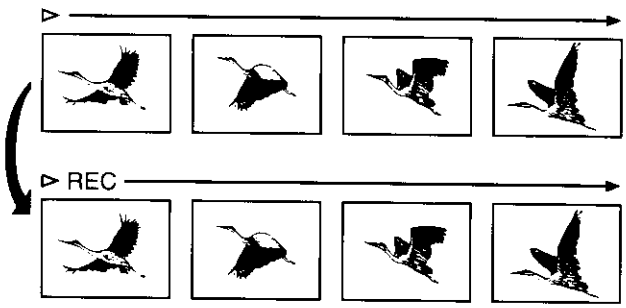
Editing

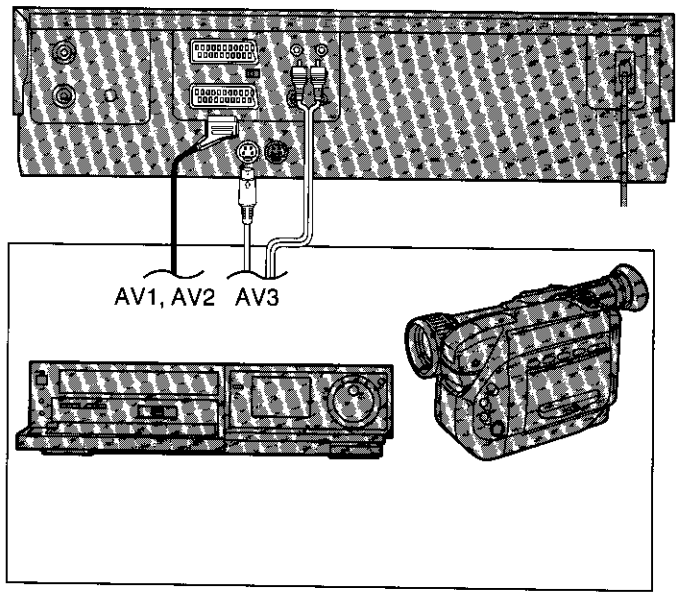
Copy Editing

This function is used to make duplicate.

Preparation

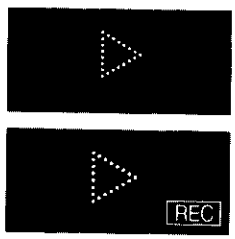
Connect a Movie Camera or another VTR to this VTR as shown.
Set **NOISE FILTER/EDIT** to EDIT.
Insert the recorded tape in the already connected video source, and a blank tape into this VTR and select A1–A3 by pressing **INPUT SELECT**.
A1: Recording via AV1 Socket
A2: Recording via AV2 Socket
A3: Recording via S-VIDEO IN and AUDIO IN Sockets (AV3)





1 PLAY

2 REC



Operations

1 Play back the recorded tape on the video source.

2 Copy the tape by pressing **REC** on this VTR.

Note:

- Set **NOISE FILTER/EDIT** to OFF for ordinary use of the VTR.
- Set **PAL/MESECAM** according to the colour TV system of the video source.
  PAL: When receiving PAL signals
  MESECAM: When receiving SECAM signals
  The MESECAM Indicator lights up.

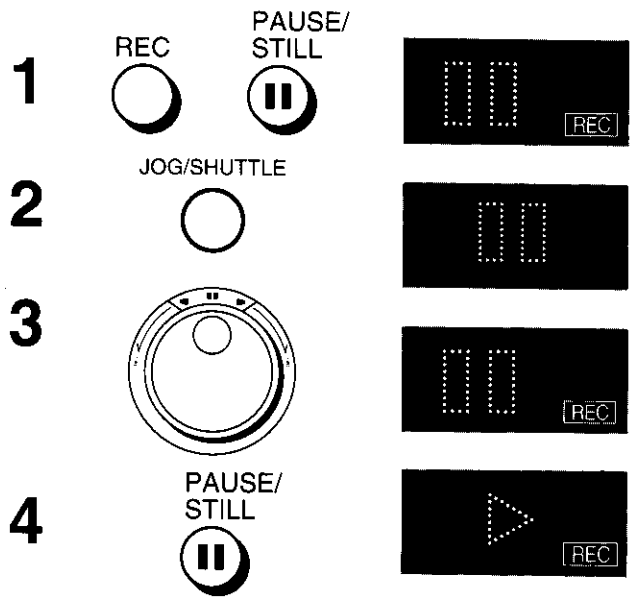
Assembly Editing

It can be used to make up an Edited tape from several other recordings or video sources.

A new scene can be added to the end of a previous one, providing a clean edit without noise.

Preparation

Insert a recorded cassette tape with an intact erasure prevention tab, and select the video source required by pressing **INPUT SELECT** to set A1–A3.
Set **NOISE FILTER/EDIT** to EDIT.



Operations

1 Put the VTR in the recording pause mode by pressing **REC** and **PAUSE/STILL**.

2 Press **JOG/SHUTTLE**.

3 Search for the end of the previously recorded segment by using the Jog Dial.
After 2 seconds, VTR will be set to the recording pause mode.

4 Start the new recording by pressing **PAUSE/STILL** again.

Synchronized Editing

It is possible to synchronize the playback start and stop of the Movie Camera with the recording start and stop of this VTR.

Preparation

Connect a Movie Camera to this VTR with Synchro Connection Cord (optional).

Insert a recorded cassette tape with an intact erasure prevention tab, and select the video source required by pressing **INPUT SELECT** to set A1–A3.
Set **NOISE FILTER/EDIT** to EDIT.

Operation

1 Put the VTR in the recording pause mode by pressing **REC** and **PAUSE/STILL**.

2 Put the Movie Camera in the still playback mode at the point where you want to start editing.

3 Press **PAUSE/STILL** on the VTR.
- The Movie Camera changes over to the playback mode and the dubbing will start automatically.

Synchronized Editing between the VTRs
When editing from another VTR equipped with Synchro Edit Socket, synchronized start and stop of both VTRs can be activated from this VTR.

The operation is the same as described for synchronized editing from a Movie Camera.

ENGLISH

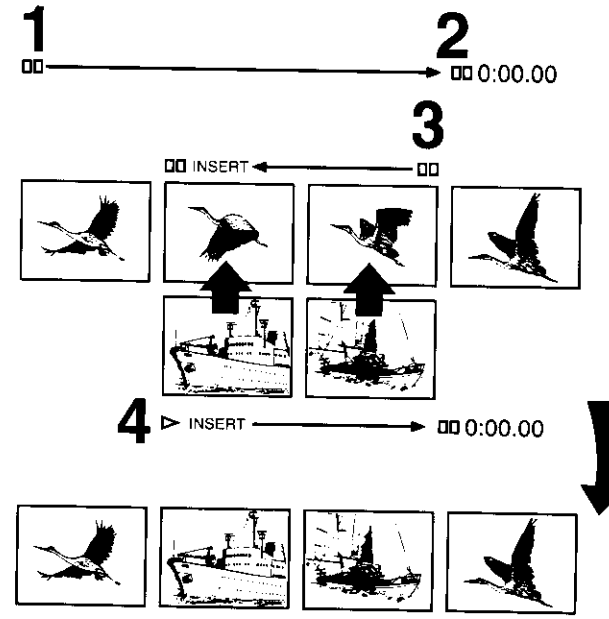
Insert Editing

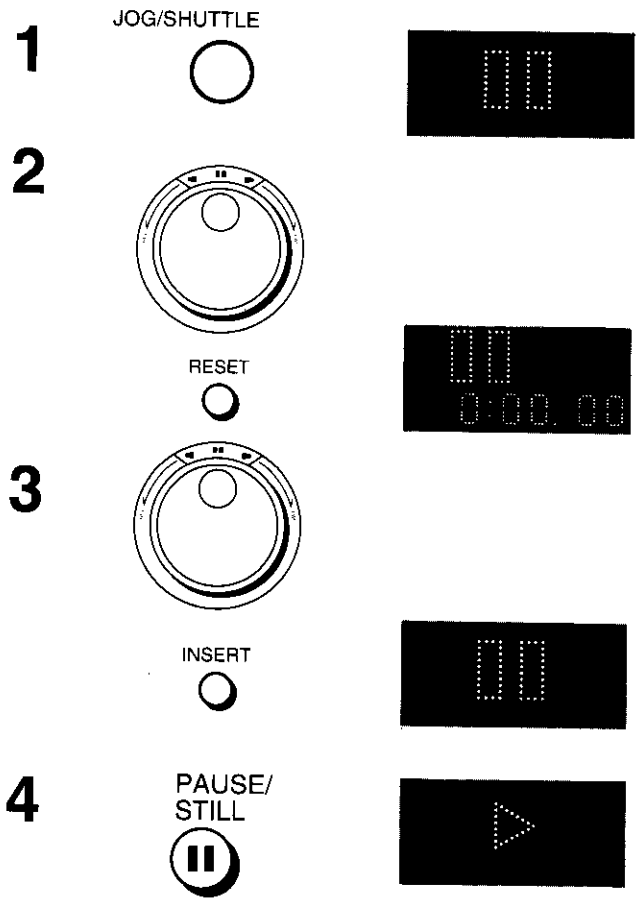
It is used to substitute one scene for another providing a noise free Edit to the picture at both the Edit IN and OUT points.

Insert Editing cannot be used on blank sections of tape. In this case use Assemble Editing first.

Preparation

Insert a recorded cassette with an intact erasure prevention tab, and select the video source required by pressing **INPUT SELECT** to set A1–A3.
Set **NOISE FILTER/EDIT** to EDIT.





Operations

1 Press **JOG/SHUTTLE**.

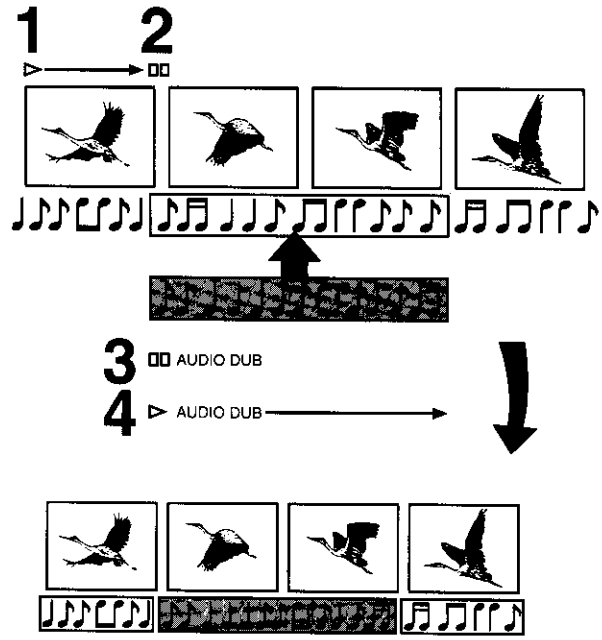
2 Use the Shuttle Ring and the Jog Dial to search for the point where you want the editing to end (end point), and set the counter to 0:00.00 by pressing **RESET**.

3 Use the Shuttle Ring and the Jog Dial to search for the point where you want the editing to start (start point), and press **INSERT**.
(The Insert Editing Indicator lights up.)
If you want to replace the sound on the "normal" audio track, too, press **AUDIO DUB**.
(The Audio Dubbing indicator lights up.)

4 Start insert editing by pressing **PAUSE/STILL**, and the inserted new recording will stop in the still playback mode when the counter reaches 0:00.00.

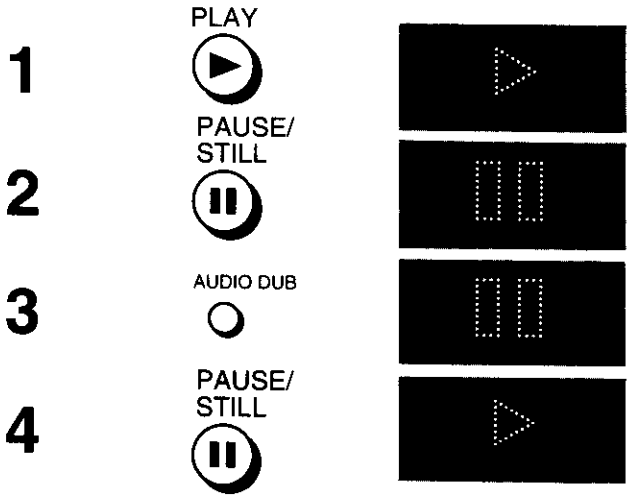
Audio Dubbing

It is used to add the back ground music etc.



Preparation

Insert a recorded cassette with an intact erasure prevention tab, and select the audio source required by pressing **INPUT SELECT** to set A1–A3.



Operations

1 Search for the starting point at which you want to record new sound by pressing **PLAY**.

2 At the beginning of the point press **PAUSE/STILL**.

3 Set for audio dubbing by pressing **AUDIO DUB**. (The Audio Dubbing indicator lights up.)

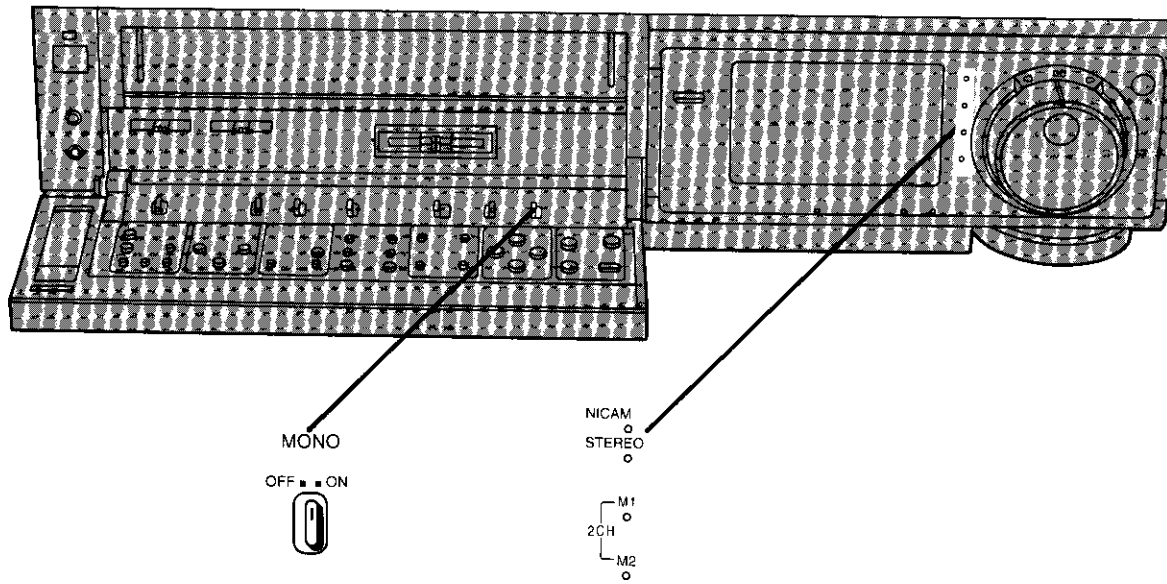
4 Start recording the new sound by pressing **PAUSE/STILL**.
Stop recording by pressing **STOP**.

Note:
The new sound will be recorded on the normal sound track of the tape, and the original sound will remain on the HiFi sound track. Only monaural sound recording is possible on the normal sound track.
To hear the new sound, select the normal sound track by pressing **AUDIO OUT**.
To hear the new sound and original sound mixed together, set **HI-Fi/NORMAL MIX** to ON.

ENGLISH

Other Function

Hi-Fi Audio System



This VTR is equipped for reception of stereo/bilingual broadcasts both in the NICAM stereo/bilingual sound system employed in the Scandinavia, etc. and in the Stereo/bilingual sound system used in Germany and other Central European countries.

NICAM is a 2 Channel sound broadcast system to provide either a high quality stereo sound track or 2 independant MONO sound tracks, M1 and M2.

NICAM programmes are always accompanied by standard sound broadcasts and you can select the desired sound with **MONO** (when recording) or with **AUDIO OUT** (when playback).

The NICAM digital stereo sound can only be recorded on the Hi-Fi audio track.

When a stereo, bilingual or NICAM programme is being received, the indicators are lit to inform you of the type of broadcast.

Reception of a Stereo Broadcast
When the STEREO indicator is lit, set **MONO** to OFF to be able to record on the Hi-Fi sound track in stereo.

Reception of a Bilingual Broadcast
When the M1 and M2 indicators are lit, set **MONO** to OFF if you want to record both channels on the Hi-Fi sound track. M1 is the main channel and M2 is the sub channel.

Reception of a NICAM Stereo Broadcast
When the NICAM and STEREO indicators are lit, set **MONO** to OFF to be able to record on the Hi-Fi sound track in stereo.

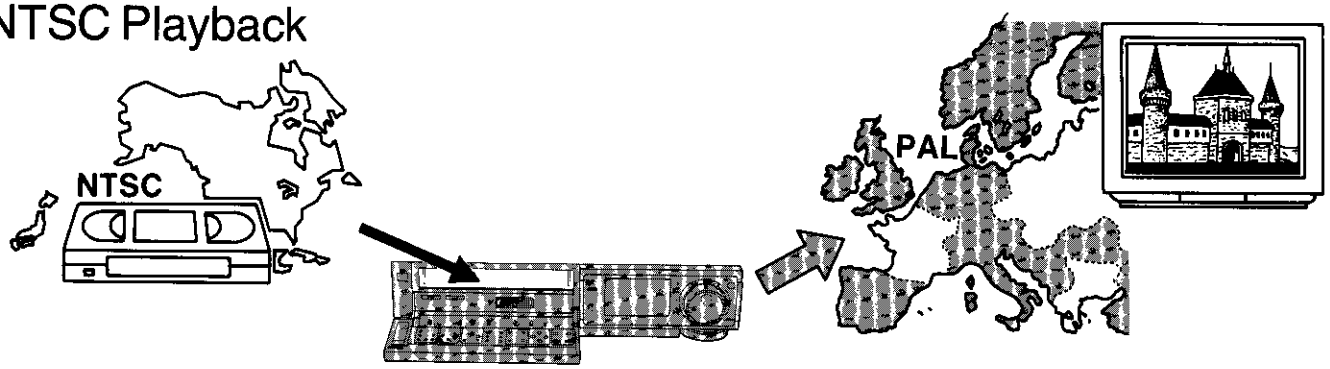
Reception of a NICAM Dual-Sound Broadcast
When the NICAM, M1 and M2 indicators are lit, set **MONO** to OFF if you want to record both channels on the Hi-Fi sound track. M1 is the left-hand channel and M2 is the right-hand channel.

Reception of a NICAM Monaural Broadcast
When a NICAM monaural broadcast is being received, the NICAM and M1 indicators are lit. To hear such a signal on both channels and to record it on both channels of the Hi-Fi track, set **MONO** to OFF.

- To record the regular sound (ordinary normal sound) on the FM audio tracks when a Stereo, Bilingual or NICAM programme is received, set **MONO** to ON.

Important Note for the NICAM System
When this VTR tuner is switched on, it will automatically switch to a NICAM broadcast, if NICAM is being transmitted. During test transmissions, it is possible that the sound received doesn't correspond to the picture being viewed. In order to receive a synchronized sound and picture, select monaural sound with either **AUDIO OUT** or with **MONO**. This will only apply until NICAM transmissions are fully operational.
At this time the NICAM signal is transmitted on stereo channels only, since the M1 and M2 formats are not yet available. Even if the sound track is in MONO the stereo indicator will remain illuminated.

NTSC Playback



Introduction

Tapes recorded in the NTSC system can be played back with this VTR via a PAL system TV set.

Operations

Insert the **NTSC** cassette tape and play back by pressing **PLAY**.

Note:

- NTSC is the TV broadcasting system used in U.S.A., Japan, and some other countries.
  PAL is another TV broadcasting system used in U.K., Germany and many other parts of the world.
  This VTR will not replay or Record tapes on the SECAM broadcasting system.
- The system of this VTR is a modified version of the PAL broadcasting system to allow most TV's to reproduce a colour picture when an NTSC tape is replayed on this VTR. However due to the system change, the picture may shrink, roll or not reproduce colour on some Televisions.
- During playback of NTSC recordings, the Tape Counter does not function correctly.

Bar Code Operation

Scanner Preparation

Operating the Remote Controller

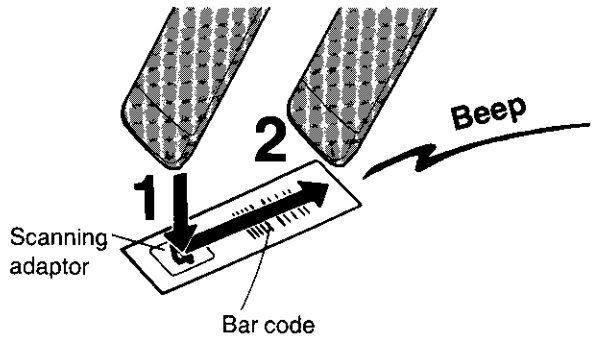
This remote controller also operates as a digital-scanning bar code reader.

Press **SCANNER ON/OFF** to turn it on.

If the remote controller is not operated within 25 seconds (within 4 minutes when setting the clock time), it will automatically switch over to the power-saving standby condition and the lamp will go off. (In this condition, if bar codes have already been read but not yet transmitted to the VTR, the data will be cancelled.)

When the lamp is not lit, press **SCANNER ON/OFF** to turn it on again.

Reading the bar codes



1 Fit the remote controller to the scanning adaptor.

2 Trace the bar code quickly in the direction of the arrow, ensuring that you trace it completely past the last bar. The "Beep" sound indicates that the bar code has been read completely.

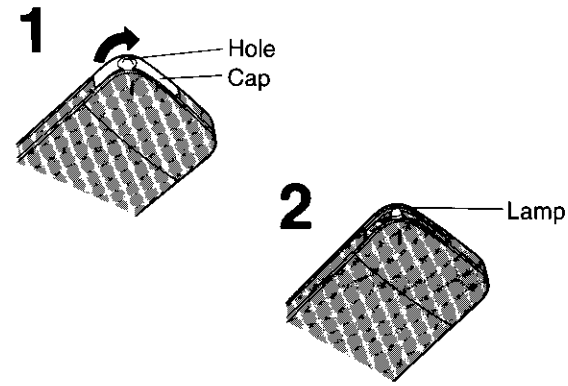
When the Bar Codes Cannot be Read

Although the lamp in the tip of the Bar Code Reading Section lights up:

- No figures appear in the Display
- No beep sounds is heard;

The tip of the Bar Code Reading Section is probably clogged with dirt.

Cleaning



1 Remove the cap of the Bar Code Reading Section.
- Remove dirt and dust from the hole of the cap.

2 Gently wipe the tip of the lamp with a soft cloth.
- Reattach the cap by inserting it until it locks with a click.

Remote Control Modes

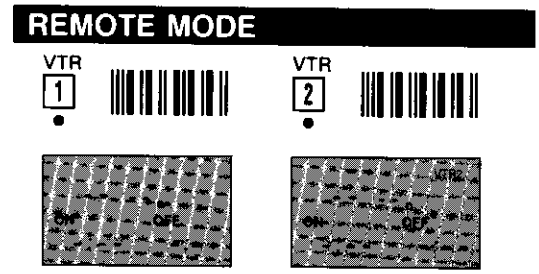
Adjust the remote control mode of the Digital Scanner to the same remote control mode (VTR 1 or VTR 2) as selected on the VTR itself.

When Remote Control Mode "VTR 2" is selected on the VTR

Trace the "VTR 2" bar code on the Programming Sheet.

- "VTR 2" will appear in the Bar Code Reader Display.

When the "VTR 1" bar code is traced, the "VTR 2" indication will disappear and the remote control mode is changed back to "VTR 1".

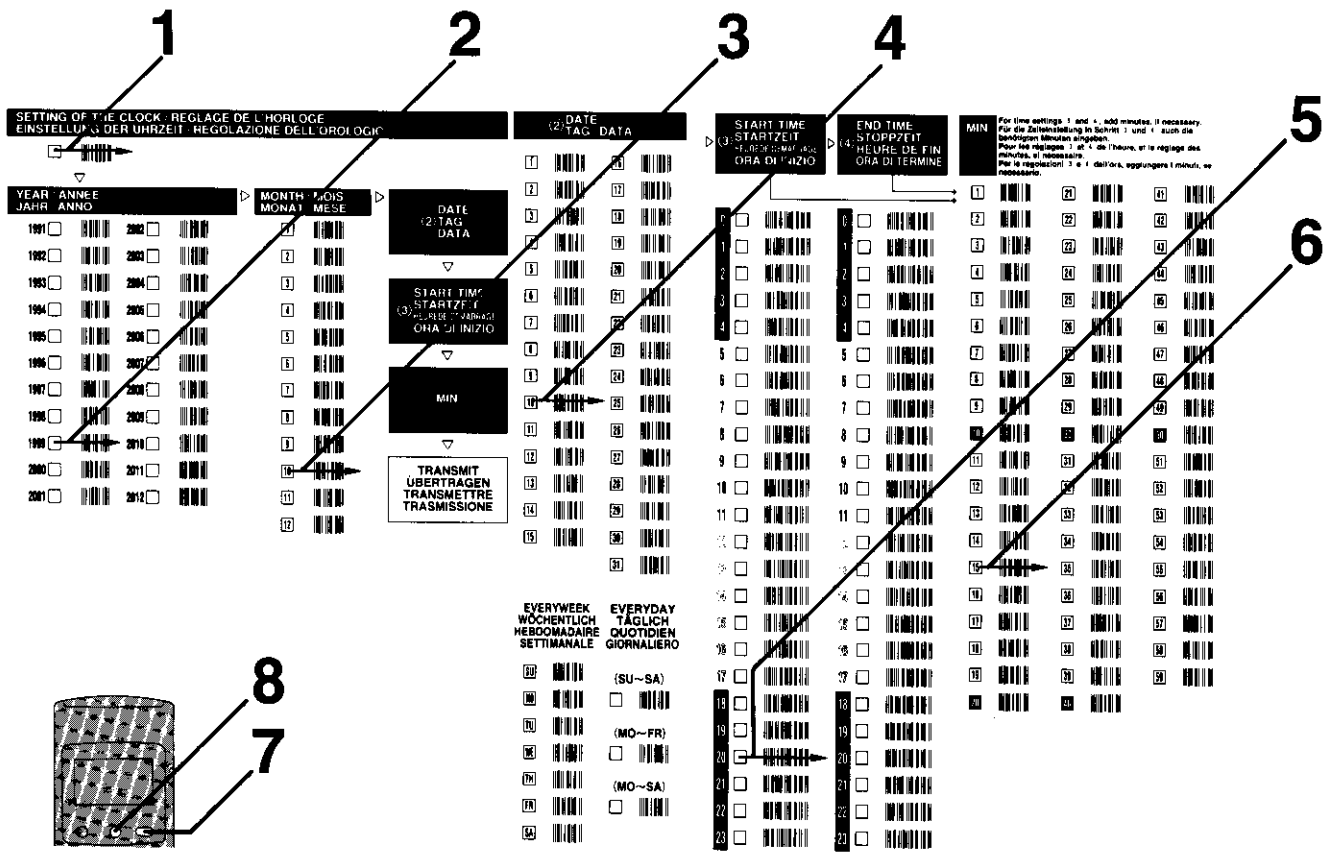


Note:

Setting the Clock

Read in the following data successively by tracing bar codes 1 to 6 on the programming sheet.

For Example: Set the clock for Sunday, October 10, 1999, 20:15.



Preparation

Turn on the VTR and the remote controller.

Operations

1 Trace the bar code SETTING OF THE CLOCK.

2 Trace the bar code for the year (YEAR).

3 Trace the bar code for the month (MONTH).

4 Trace the bar code for the day of the month (DATE).

5 Trace the bar code for the hour (START TIME).
- The repeated beep sound indicates correct bar code reading and readiness for transmitting the data to the VTR.

6 Trace the bar code for the minute (MIN).
- The beep sound will be heard again.

7 To transmit the data to the VTR, point the remote controller at the reception window on the VTR and press **TRANSMIT**.
- The transmitted data appears on the display, and a beep sound confirms proper reception.

8 To turn off the remote controller, press **SCANNER ON/OFF** again.
- If the Remote Controller is left with no operation performed for more than 4 minutes, it will automatically switch over to the power-saving standby condition and the lamp in the reading tip goes out. In this case, bar codes that have already been read (but not yet transmitted to the VTR) will be cancelled.

ENGLISH

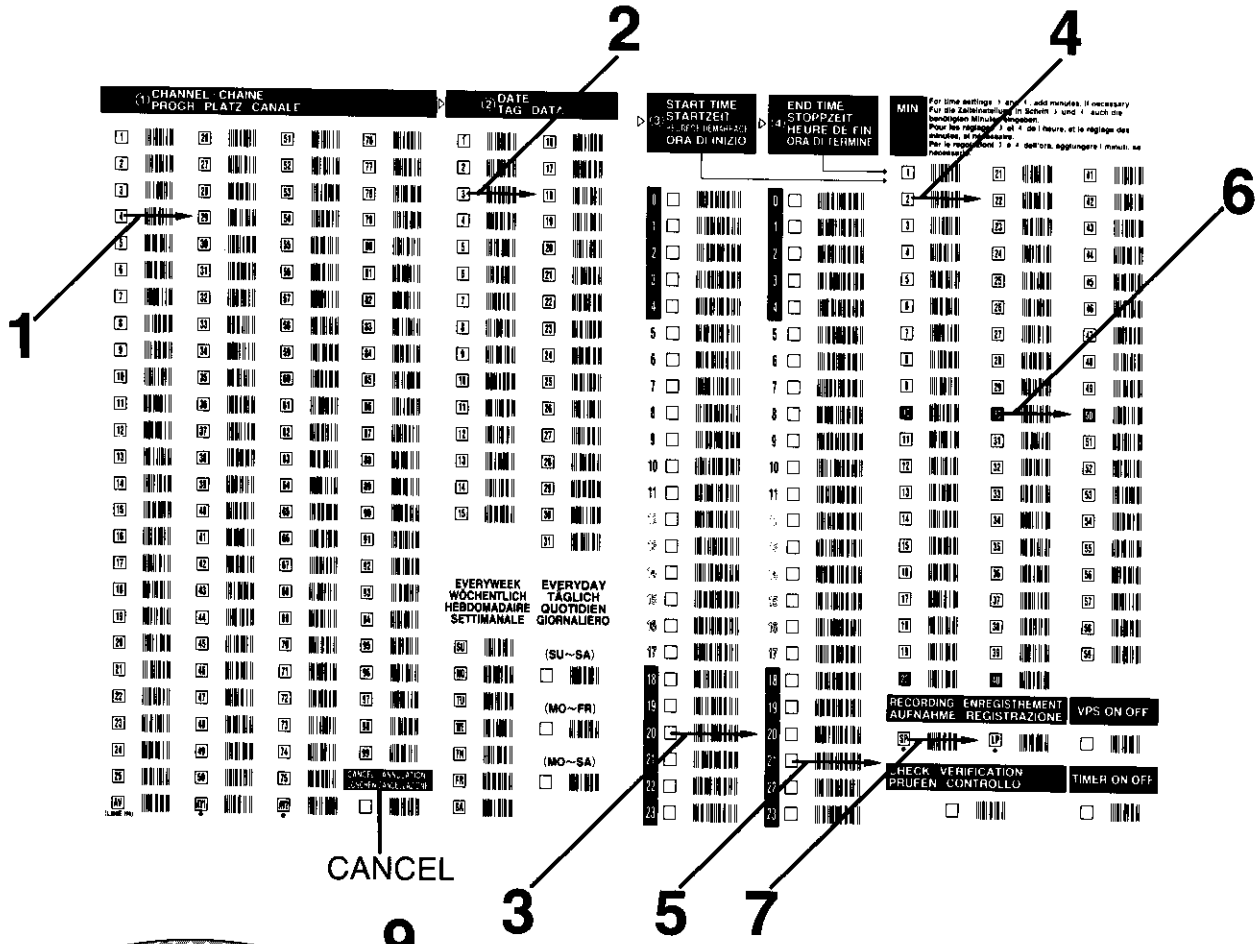
Timer Recording

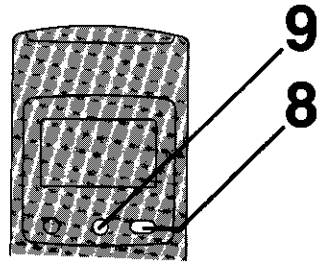
Setting Timer Recordings from Bar Codes

Successively scan the data for the programme channel, day, starting time and ending time by tracing bar codes 1 to 7 on the programming chart.

For Example:

When programming a timer recording for a programme that will be broadcast on programme position 4 on the 3rd of the month, from 20:02 to 21:30.





Timer Recording Every Day at the Same Time

For this timer setting, three day patterns can be selected:

Ⓐ Daily recording from Sunday to Saturday

Ⓑ Daily recording from Monday to Friday

Ⓒ Daily recording from Monday to Saturday

(SU~SA) (MO~FR) (MO~SA)

Ⓐ Ⓑ Ⓒ

Timer Recording at the Same Time on the Same Day Every Week

Trace the bar code for the day of the week in the EVERYWEEK column.

For example, SU (Sunday).

EVERYWEEK
WÖCHENTLICH
HEBDOMADAIRE
SETTIMANALE

Preparation

Turn on the VTR and the remote controller.

Operations

1 Trace the bar code for CHANNEL.

2 Trace the bar code for DATE.

3 Trace the bar code for START TIME.

4 Trace the bar code for MIN.

5 Trace the bar code for END TIME.
- The repeated beep sound indicates readiness for data transmission to the VTR.

6 Trace the bar code for MIN.
- The beep sound will be heard again.

7 Trace the bar code for RECORDING according to the desired tape speed.
- The beep sound will be heard again.

8 To transmit the data to the VTR, point at the reception window on the VTR and press **TRANSMIT**.
- The transmitted data appears on the display of the VTR and a beep sound confirms proper reception.

Programming a Series Timer Recordings
Trace the CANCEL bar code.
Repeat the required steps 1 to 8 for each timer recording.

9 To turn off the remote controller press **SCANNER ON/OFF**.

Turning the Timer on and off
After programming a timer recording, the timer recording indicator "⏲" lights up, and the VTR can no longer be used for normal recording and playback. To make it possible to use the VTR, trace the TIMER ON/OFF bar code and transmit to the VTR (the timer recording indicator "⏲" will go out). To reactivate the timer again, trace the TIMER ON/OFF bar code again and transmit to the VTR (the "⏲" indicator will light again).

Timer Recording from an External Signal Source
If a timer recording is to be made from a signal source that is connected to the 21 pin scart terminal, the "AV" bar code in the CHANNEL column must be traced for the programme.
AV 1: AV1 socket
AV 2: AV2 socket
- AV 3 can not be selected.

Checking Timer Recording Settings
The VTR must be turned on, or with the timer recording indicator "⏲" lit.

1 Trace the CHECK bar code.

2 Transmit the data to the VTR.
- The programmed data will be displayed for about 12 seconds in the display panel.
To check the settings for the next timer recording, press **TRANSMIT**.

Cancelling Timer Recording Data
The data for the timer recording must first be displayed on the panel.

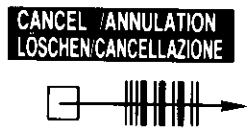
1 Trace the CHECK bar code.

2 Transmit the data to the VTR.

3 Trace the CANCEL bar code.

4 Transmit the data to the VTR.

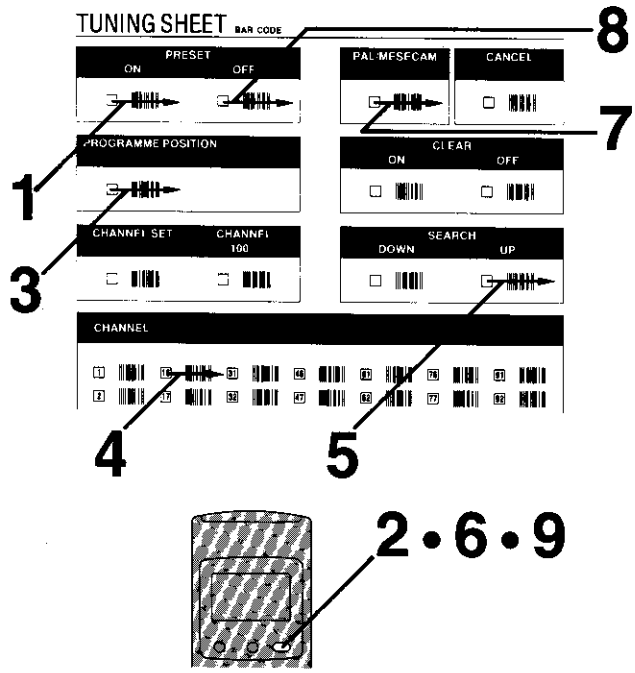
The programmed timer recording will be cancelled and "– –" dashes will appear on the display panel.



Turning the VPS Function on and off
If the VTR is equipped with the VPS function, the VPS function is automatically activated when the Digital Scanner On/Off Button to ON, or when the CANCEL bar code is traced. To cancel VPS function, trace the bar code VPS ON/OFF. To activate the VPS function again, trace the bar code VPS ON/OFF again.

Storing TV Broadcasts

Read in the required data successively by tracing the bar codes on page 95.



Preparation

Turn on the VTR and the Remote Controller.

Operations

1 Trace the bar code "PRESET ON".
- If no operations are performed within more than 4 minutes, the Digital Scanner will automatically turn itself off.

2 Press **TRANSMIT** to transmit to the VTR.

3 Trace the bar code "PROGRAMME POSITION".

4 Trace the bar code for the programme position (channel) that you want to tune to a station.

5 Trace the bar code "SEARCH UP" or "SEARCH DOWN".

6 Press **TRANSMIT** to transmit to the VTR.
- The channel will be tuned automatically.
- At every push of the button, the next channel will be tuned.

7 When the Indication in the Multi-Function Display does not show the correct broadcasting system ("1"=PAL; "2"=MESECAM) for the station to be tuned, trace and transmit the bar code PAL/MESECAM to select the correct broadcasting system.

8 Trace the bar code "PRESET OFF".

9 Press **TRANSMIT**.

Notes:
- If you make a mistake in the above operation steps, trace the bar code "CANCEL" and start again from step 4.
- When setting more than 2 channels, repeat the steps 3–7 above.

Setting the Tuner Directly

Perform the operation steps 1–4.

5 Trace the bar code "CHANNEL SET".

6 Trace the number of the channel for the TV station that you want to tune.
- When tuning a TV station in the hyperband, trace the bar code "CHANNEL 100~" and then trace the bar code "CHANNEL".

Press **TRANSMIT** to transmit to the VTR.

Perform the operation steps 7–9.

If you want to tune further TV stations, repeat the steps 3 to 7.

Blanking of Unoccupied Programme Positions

Perform the operation steps 1–3.

4 Trace the bar code for the programme position that you want to blank so that it will be skipped during Up/Down selection of the programme positions.

5 Trace the bar code "CLEAR ON".

6 Press **TRANSMIT** to transmit to the VTR.

7 Trace the bar code "PRESET OFF".

8 Press **TRANSMIT**.

Cancelling the Clear Function (Blanking)

Perform the operation steps 1–3 above.

4 Trace the bar code for the programme position that has been blanked until now.

5 Trace the bar code "CLEAR OFF".

Perform the operation steps 6–8 above.

- To programme a timer recording or the set the clock time immediately after setting the tuner in the VTR by using the Remote Controller, first press **SCANNER ON/OFF** on the Remote Controller to turn it off, before starting the above operation.

Before Requesting Service

Before requesting service, check the following points once again.

VTR will not operate correctly			
SYMPTOM	CAUSE	REMEDY	CHECK
Multi-function display is not illuminated.	Mains lead not connected.	Reconnect mains lead to VTR and ensure it is switched on at mains plug.	
Multi-function display is illuminated but VTR will not operate when VTR button pressed.	VTR in timer mode.	Press the TIMER REC button to operate VTR manually. See page 27.	
	Safety devices operating.	Disconnect mains lead and wait for 1 minute. Reconnect mains supply and check functions.	
VTR will operate for a few seconds then power off.	Tape jammed in VTR.	If tape jammed in VTR, do not attempt to remove as this may cause damage. Consult your dealer for advice.	

Playback functions defective			
SYMPTOM	CAUSE	REMEDY	CHECKED
Picture noisy or not in colour.	Not tracking correctly.	Although auto-tracking should ensure a good picture, it may be necessary to manually adjust tracking on some tapes not recorded on this VTR. See page 15.	
	TV set not tuned to VTR.	Operate test switch on VTR and check TV tuning. See page 8.	
	Tape recorded incorrectly.	Check aerial connected to VTR. See page 5.	
		Check each programme station in tune. A snowy picture on one or more programmes may indicate VTR tuned to weak station or wrong transmitter. Re-tune if necessary. See page 10.	
		If timer record was used confirm that a programme number had been selected that was correctly tuned.	
	Video heads clogged.	Condensation may have formed, or a faulty tape has been used. See Video Head Clogging. Do not operate VTR for 1 hour then insert a new tape (the original may be faulty) and playback for a few minutes. If fault does not clear consult your dealer for further advice.	
	Video head worn.	Carry out same procedure as for clogged video heads. If fault does not clear consult your dealer for advice.	
Horizontal bars run down.	Tape defective due to surface damage or wear.	Confirm other tape OK and replace defective tape. See separate section on tape care.	
	Video heads may be worn or service require.	Consult your dealer for further advice.	
VTR goes into auto rewind mode while playing tape.	Tape defective due to surface damage or wear causing end of tape detection to operate.	Replace defective tape.	

SYMPTOM	CAUSE	REMEDY	
Alarm sound is produced and "CTO" indication flashes when ever recording is attempted.	Erasure prevention tab on cassette is broken out.	Use tape with intact erasure prevention tab or cover tab hole with adhesive tape, if original recording is no longer required.	
Picture is recorded with noise or blank screen.	Aerial or aerial lead defective.	Check aerial connection to VTR. See page 5. Check your normal TV picture. If no picture check your aerial.	
	VTR is not correctly tuned.	Re-tune VTR. See page 10. Ensure input selector set to TV programme.	
	Input selector is not correctly set.	Press INPUT SELECT button to select AV1, AV2, AV3 for external source or select TV programme. See page 18.	
OTR will not function.	Clock is flashing 0:00.	Set clock to present time. (Note this is a 24 hour clock.) See page 9.	
Timer recording cannot be performed. (With controls on VTR)	Clock or calendar incorrectly set.	Check clock and calendar. Set to present time. (Note this is a 24 hour clock.) See page 9.	
	Clock is flashing 0:00.	Set clock to present time.	
	Recording start or stop time setting incorrect.	Set recording start and stop time correctly. Try a short timer recording a few minutes ahead of the present time to confirm correct operation. See page 26.	
	VTR not set for timer recording.	After setting up timer recording set TIMER REC to on.	
AV1, AV2, AV3, external recordings cannot be made.	Input Selector is not correctly set.	Select AV1, AV2, AV3.	
	External AV connections incorrect.	Check connections for external video and audio source are correct.	

Remote control functions defective			
SYMPTOM	CAUSE	REMEDY	CHECKED
Remote controller does not operate correctly.	Remote controller transmitter beam not reaching VTR.	Ensure remote controller is being pointed at VTR and that transmitter beam is not obstructed.	
	Distance is too far.	Use remote controller within 7 m of VTR. If range is reduced, replace batteries.	
	Batteries are exhausted.	Replace batteries by type UM3 or R6 type available from your dealer. Note caution when replacing on page 19.	
	Batteries incorrectly fitted (+, −) reversed.	Fit batteries correctly as shown on page 19.	
	Remote control mode of the VTR and the Remote Controller do not match.	Set the same remote control mode. Either VTR 1 or VTR 2 shown on page 13.	
Bar code reading not possible.	Remote controller in power saving condition.	Turn on the remote controller again.	
	Bar code not traced correctly.	Practice tracing the bar code from left to right. Each bar code should take around half a second to trace. A beep indicates bar code is read correctly.	
	Bar code sensor cap blocked.	Remove sensor cap and clean as shown on page 38.	
Bar code data cannot be transmitted to VTR.	VTR is turned off.	Turn VTR on.	
	VTR is operating.	Stop VTR.	
	Timer record memory is full.	Cancel timer recording to enter a new timer event or wait until one timer event has taken place.	
	Bar code reading was not followed by a repeated beep.	Read bar code again.	
	Remote control mode of the VTR and the Remote Controller do not match.	Set the same remote control mode. Either VTR 1 or VTR 2 shown on page 13.	

Specifications

NV-FS88EC
Information for Your Safety

ENGLISH

Power Source:	220–240 V AC 50–60 Hz		
Power Consumption:	Approx. 39 watts		
Video Recording System:	2 rotary heads, helical scanning system		
Video Heads:	4 heads		
Tape Speed:	SP; 23.39 mm/sec.		
	LP; 11.7 mm/sec.		
Tape Format:	VHS/S-VHS tape		
Record/Playback Time:	SP; 240 min. with NV-E240		
	LP; 480 min. with NV-E240		
FF/REW Time:	Approx. 2.5 min. with NV-E180		
VIDEO			
Television System:	CCIR; 625 lines, 50 fields, PAL colour signal		
Modulation System:	Luminance; FM azimuth recording		
	Colour signal; converted subcarrier phase shift recording		
Input Level:	Euro AV (AV1/AV2);	1.0 Vp-p,	75 ohm
	S-VIDEO IN (AV3);	Y: 1.0 Vp-p,	75 ohm
		C: 0.3 Vp-p,	75 ohm
Output Level:	Euro AV (AV1/AV2);	1.0 Vp-p,	75 ohm
	S-VIDEO OUT;	Y: 1.0 Vp-p,	75 ohm
		C: 0.3 Vp-p,	75 ohm
	RF Modulated;	UHF channel 36 (±4),	75 ohm, terminated
AUDIO			
Input Level:	Euro AV (AV1/AV2);	more than −6 dBV,	more than 10 kohm
	AUDIO IN (AV3) (PHONO);	more than −10 dBV,	more than 47 kohm
	MICROPHONE;	−70 dBV	
Output Level:	Euro AV (AV1/AV2);	−6 dBV,	less than 1 kohm
	AUDIO OUT (PHONO);	−8 dBV,	less than 1 kohm
	HEADPHONES;	−30 dBV,	8 ohm
Audio Track:	1 track (Normal-mono only), 2 channels (Hi-Fi sound-stereo)		
Video Horizontal Resolution:	Colour; more than 240 lines (VHS/SP)		
	more than 400 lines (S-VHS/S-Video Socket)		
Dynamic Range:	Audio; more than 90 dB (Hi-Fi audio track)		
Audio Frequency Response:	20 Hz–20 kHz (Hi-Fi audio track)		
Wow and Flutter:	0.005% Wrms/Hi-Fi		
Operating Temperature:	5°C–40°C		
Operating Humidity:	35%–80%		
Weight:	7.5 kg		
Dimensions:	430 (W)×109 (H)×403 (D) mm		
Standard Accessories:	1 pc. Remote Controller		
	2 pcs. "UM3" or "R6" size batteries		
	1 pc. Programming Sheet		
	1 pc. AC Mains Lead		
	1 pc. DIN-DIN Coaxial Cable		
	1 pc. S-Video Cable		
	1 pc. Stereo type Phono Cables		

Weight and dimensions shown are approximate.
Specifications are subject to change without notice.